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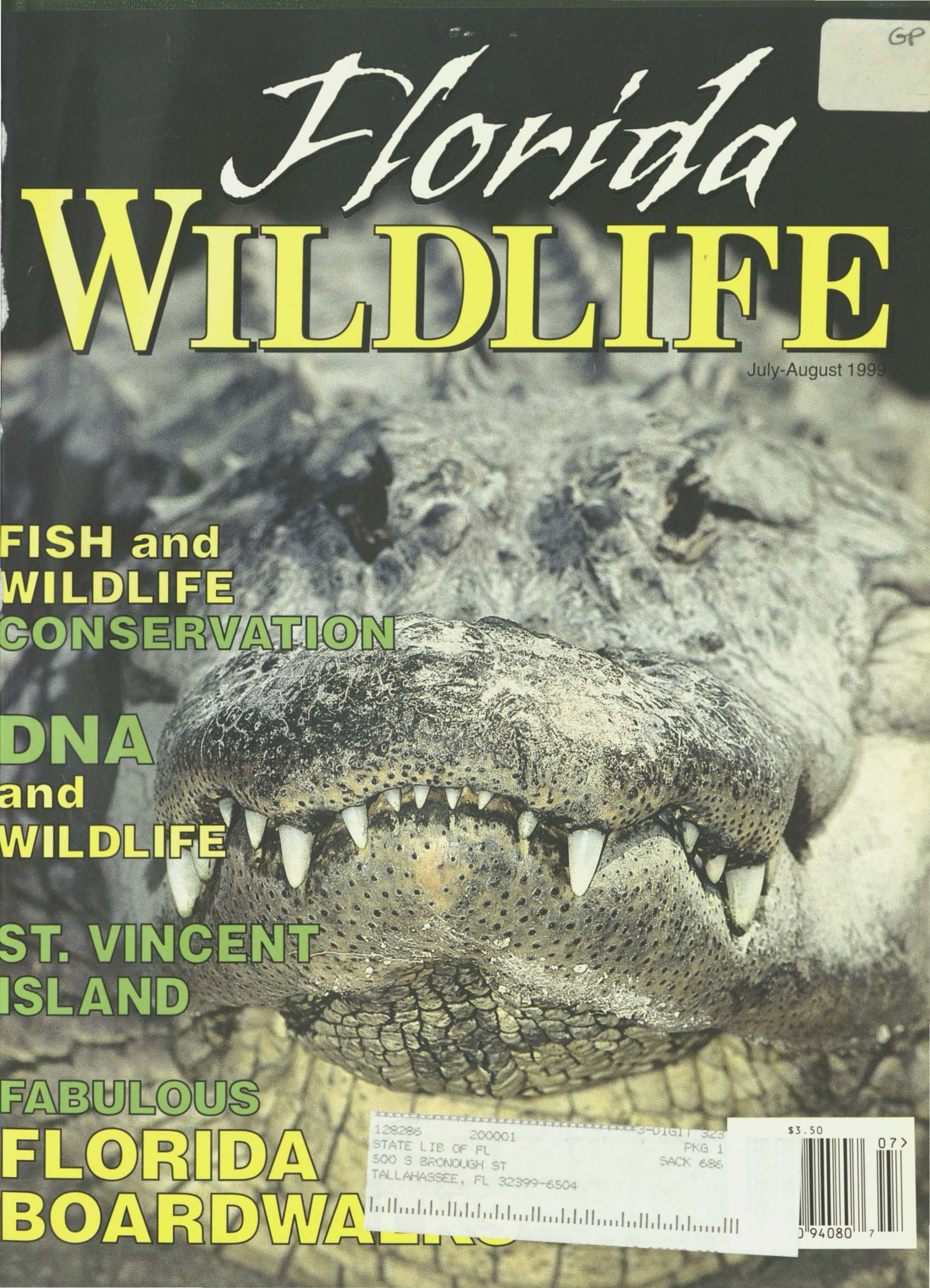

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July-August 1999

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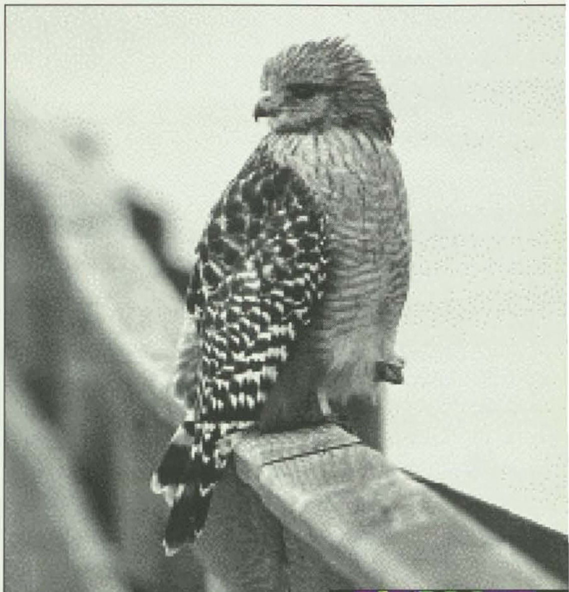

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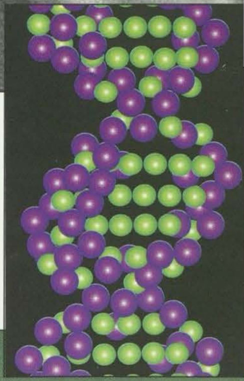

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Front Cover: Alligator by Stephen Nourse.

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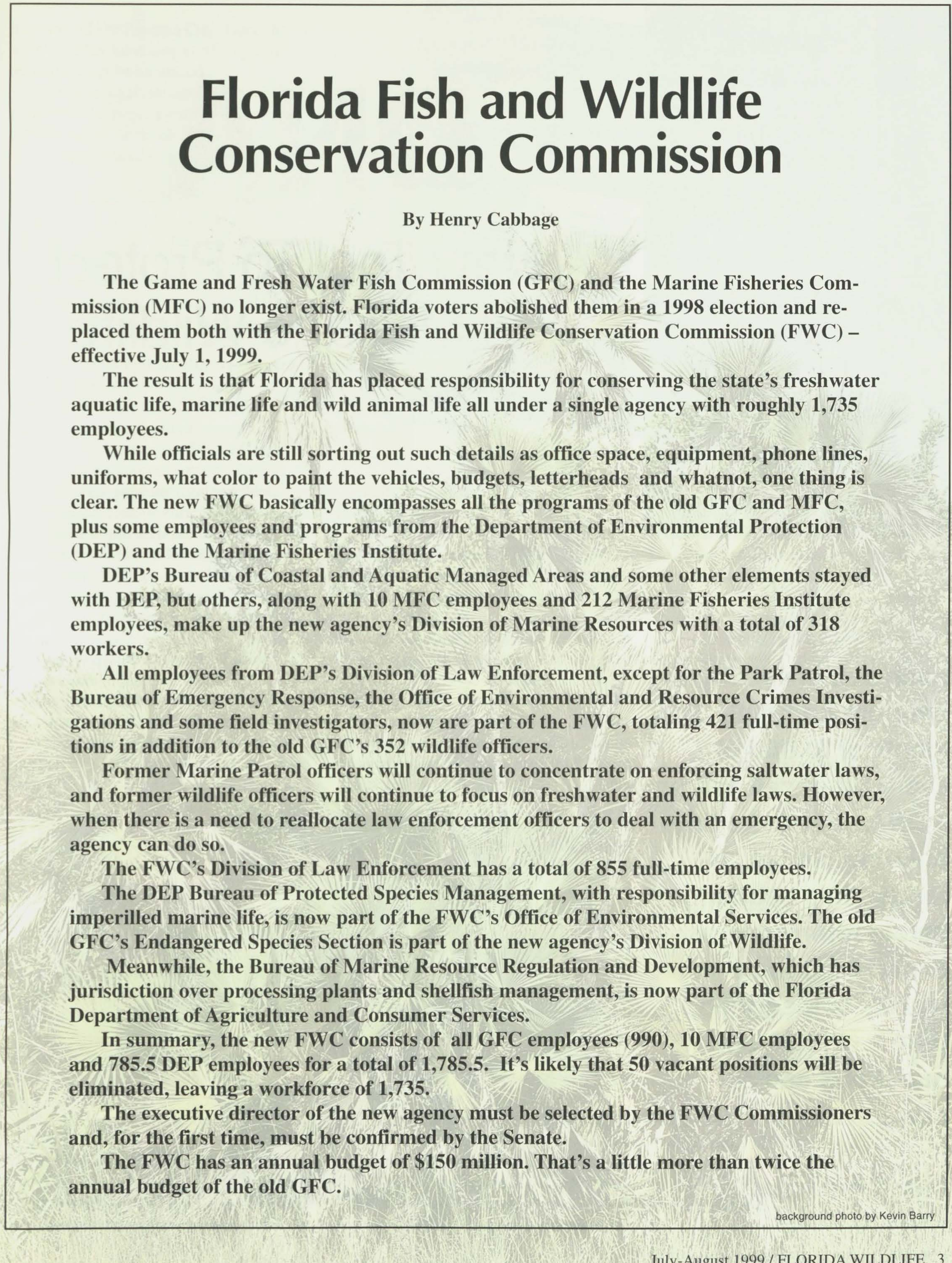
Florida Fish and Wildlife Conservation Commission

By Henry Cabbage



The Game and Fresh Water Fish Commission (GFC) and the Marine Fisheries Commission (MFC) no longer exist. Florida voters abolished them in a 1998 election and replaced them both with the Florida Fish and Wildlife Conservation Commission (FWC) – effective July 1, 1999.

The result is that Florida has placed responsibility for conserving the state's freshwater aquatic life, marine life and wild animal life all under a single agency with roughly 1,735 employees.

While officials are still sorting out such details as office space, equipment, phone lines, uniforms, what color to paint the vehicles, budgets, letterheads and whatnot, one thing is clear. The new FWC basically encompasses all the programs of the old GFC and MFC, plus some employees and programs from the Department of Environmental Protection (DEP) and the Marine Fisheries Institute.

DEP's Bureau of Coastal and Aquatic Managed Areas and some other elements stayed with DEP, but others, along with 10 MFC employees and 212 Marine Fisheries Institute employees, make up the new agency's Division of Marine Resources with a total of 318 workers.

All employees from DEP's Division of Law Enforcement, except for the Park Patrol, the Bureau of Emergency Response, the Office of Environmental and Resource Crimes Investigations and some field investigators, now are part of the FWC, totaling 421 full-time positions in addition to the old GFC's 352 wildlife officers.

Former Marine Patrol officers will continue to concentrate on enforcing saltwater laws, and former wildlife officers will continue to focus on freshwater and wildlife laws. However, when there is a need to reallocate law enforcement officers to deal with an emergency, the agency can do so.

The FWC's Division of Law Enforcement has a total of 855 full-time employees.

The DEP Bureau of Protected Species Management, with responsibility for managing imperilled marine life, is now part of the FWC's Office of Environmental Services. The old GFC's Endangered Species Section is part of the new agency's Division of Wildlife.

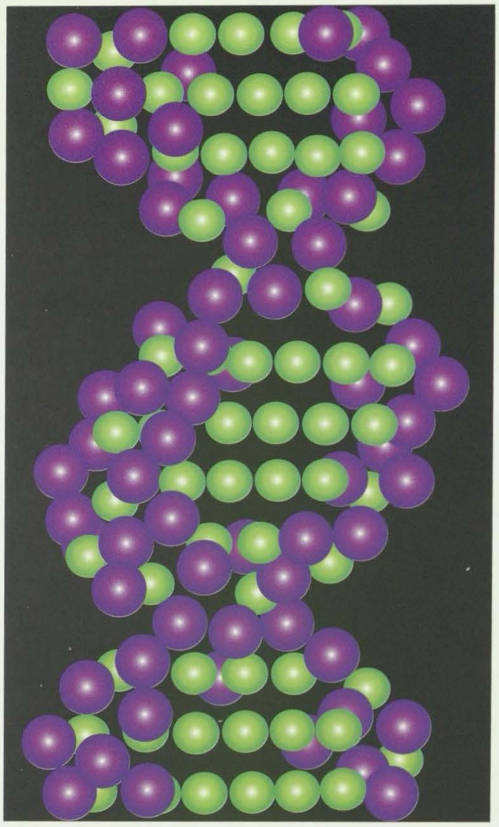
Meanwhile, the Bureau of Marine Resource Regulation and Development, which has jurisdiction over processing plants and shellfish management, is now part of the Florida Department of Agriculture and Consumer Services.

In summary, the new FWC consists of all GFC employees (990), 10 MFC employees and 785.5 DEP employees for a total of 1,785.5. It's likely that 50 vacant positions will be eliminated, leaving a workforce of 1,735.

The executive director of the new agency must be selected by the FWC Commissioners and, for the first time, must be confirmed by the Senate.

The FWC has an annual budget of $150 million. That's a little more than twice the annual budget of the old GFC.

background photo by Kevin Barry



p. perkerson

DNA

A New Tool To Protect and Manage Wildlife

Text and Photographs by James Call

Lynn Bernard York is a first: the first Floridian convicted of poaching based on DNA evidence. After pleading guilty in March to possessing freshly killed doe meat out of season, the Palm Beach resident reportedly claimed he would have fought the charge if he had the time.

During a routine check in the J.W. Corbett Wildlife Management Area, Game and Fresh Water Fish Commission wildlife officer Kathy Chidsey refused to accept York's statement that three bags of meat in his truck came from a buck and a hog. Lab tests revealed it was doe meat; it is illegal to hunt doe in Corbett. York paid his fine and told reporters he was guilty only of being in the wrong place at the wrong time.

Now is the wrong time and Florida is the wrong place to take deer out of season. DNA technology has advanced to where either a single drop of blood, a strand of hair, a tooth or a bone fragment smaller than a thumb is enough to build a case against a poacher. It is possible to link a roadside gut pile to meat in the freezer and a rack on the wall.

"The technology is so good you will not be able to conceal your behavior from a good investigative team," said Florida Fish and Wildlife Conservation Commission (FWC) field supervisor Captain Barry Cook. "The technology is there and the officers are trained."

Each cell of a living creature contains DNA identical to that of every other cell. Within a DNA strand are tiny building blocks, arranged in a sequence that is referred to as a marker. Once a marker is identified, then a whole host of questions can be answered.

Cook has been working with the University of Florida Biotechnology for Ecological, Evolutionary and Conservation Sciences (BEECS) Genetic Analysis Lab since 1996 on using DNA analysis to enforce wildlife regulations. For instance, it is illegal to sell white-tailed deer meat in Florida. BEECS developed a test to distinguish a white-tailed from farm-raised deer for commercial markets and also one to determine an animal's gender.

Each cell of a living creature contains DNA instructions identical to that of every other cell. Within a DNA strand are tiny building blocks (molecules) of which there are only four types arranged in a sequence. This sequence, or pattern, is referred to as a marker and is passed on by parents to offspring. Once a set of markers is identified, a whole host of questions can be answered.

"This genetic data has a lot of uses," said Daniel A. Brazeau, BEECS scientific director. "Not only for law enforcement but also in identifying what is (constitutes) a unit or population (of animals) for wildlife managers."

Brazeau compared DNA to a 3 billion number serial number. Once the markers for a particular group are identified, a lab can zero in on those that appear for animals in a specific subspecies, gender and even geographic region. In other words, the DNA in a sample of tissue smaller than a fingertip might tell if it came from a male, white-tailed deer that lived outside of Panama City. Trace the serial number far enough and a specific individual can be identified.

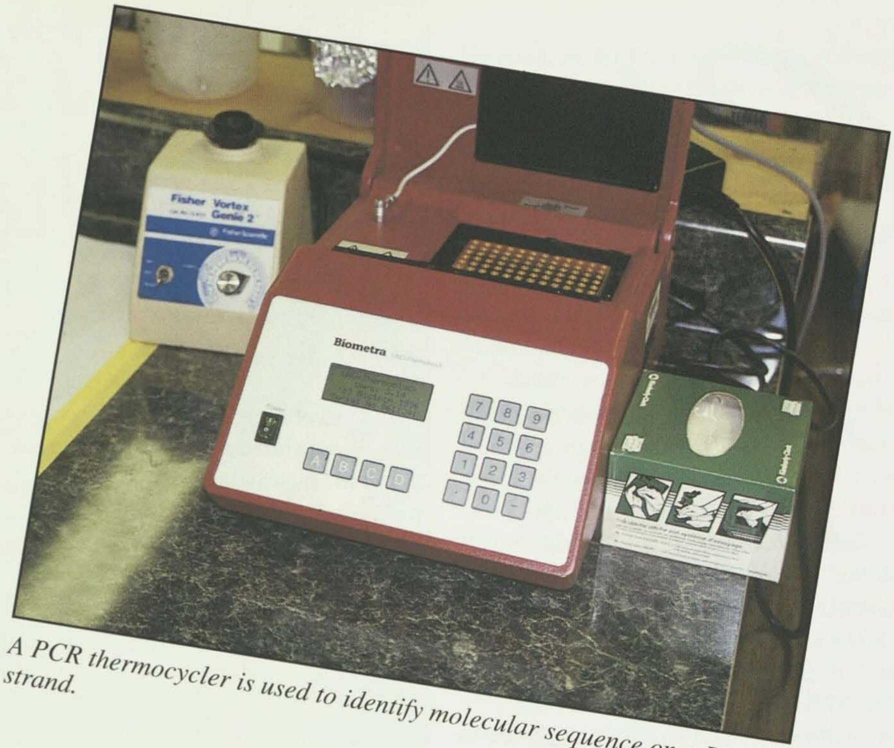
"From a legal standpoint our role in protecting the population from commercialization, we're much better able to do that by having access to this evidence," said Cook.

This is particularly true for deer. Four subspecies of white-tailed deer roam the three hunting zones of the state. In North Florida, the *osceola* lives predominately west of the Suwannee River while the *virginianus* prefers to stay east of the panhandle. The *seminolus* dominates the peninsula while the *clavium* stays in the Keys. The three regions observe different hunting dates. A DNA test could show if a suspected poacher had the remains of a deer whose range is out of season.

The FWC interest in DNA extends beyond law enforcement needs. Florida woods are not rampant with poachers. Statewide, citations for the illegal taking of wildlife dropped 20 percent during the last four years. Officials believe there are many reasons for this, including fewer subsistence hunters and the popularity of private-lease hunt clubs, which protect animals for member-only hunts. The decrease in arrests is reported throughout the southeast.

But the technology may become an indispensable tool for biologists.

"The future is almost limitless in the potential for use of wildlife management," said FWC bear biologist Thomas Eason.



A PCR thermocycler is used to identify molecular sequence on a DNA strand.

The Commission is developing a plan to use hair analysis to estimate the number of bears in the state. The genetic tests could also be used to identify movement patterns and the rate of inbreeding. Instead of capturing the animal, installing a radio transmitter, then marking it with an ear tag and lip tatoo, hair traps are set in the woods. It's less time consuming and expensive for biologists and less stressful for the bear.

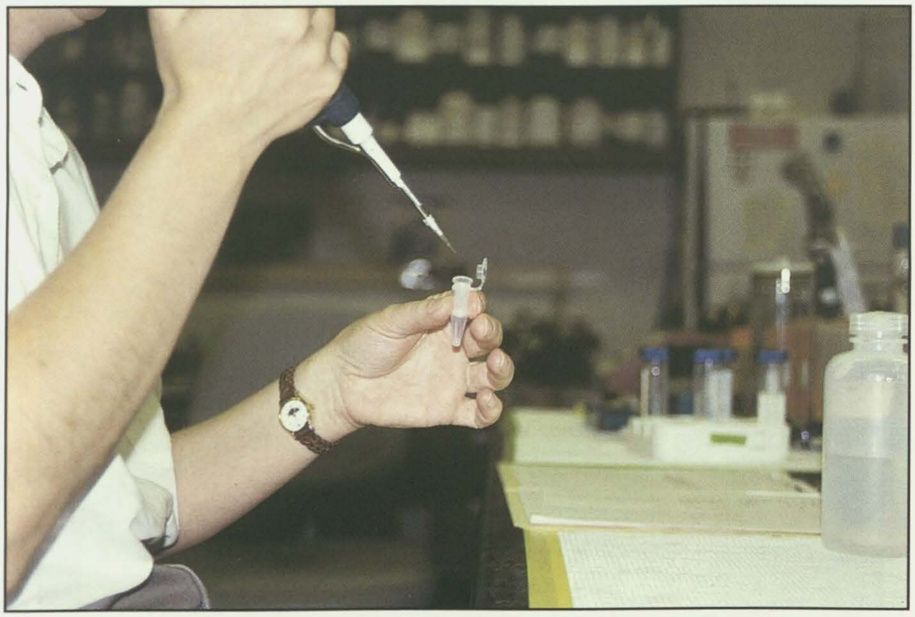
Like deer, Florida bears live in distinct populations with specific ranges. There is debate about the health of the black bear living in the state. Conservation groups want to add it to the endangered species list but the federal government has said no. An FWC proposal, pending approval and funding, would use hair traps (small barbed wire fence) to track five bear populations. If the animal's numbers begin to decline it will be revealed through DNA analysis.

Florida appears to be ahead of the curve in using this technology for wildlife purposes. It is joined by three other states (California, Wyoming and Colorado along with the Province of Alberta) that have incorporated DNA procedures for law enforcement and game management.

The FWC wildlife officers and biologists are preparing to take the next step, which includes DNA fingerprinting for deer (to identify a specific deer) and gender tests for bear and turkey.

"It's another arrow in your quiver," said Eason. "It's always good to have another arrow when it comes to wildlife management."

James Call is the associate editor of Florida Wildlife.



It takes just a small sample in a test tube to begin a DNA test.

Clues End Turkey Poacher's Reign

Text and Photographs by Lt. Jim Huffstodt

Tim Miller is a patient man. He never overlooks and forgets the small things. Almost four years ago, the wildlife officer was nosing around some palmettos among a thick growth of maple, bay and willow trees when he uncovered a clutch of plastic jugs that had been slit open. Miller suspected they had been filled with water and frozen to make ice to preserve recently killed game.

The spot was about 300 yards from the Ft. Drum Wildlife Management Area, and close to the Florida Turnpike. Turkey hunting at Fort Drum is restricted each season to a handful of people chosen in a computer drawing and willing to pay $50.

Miller suspected a poacher was at work. Where he found the jugs was a good spot for a drop-off. A place where someone could exit a vehicle and quickly disappear into the undergrowth and penetrate game-rich Ft. Drum, west of Vero Beach..

Miller made his discovery in 1995 and every year since he frequently returned to the site. On a half-dozen occasions he found empty, slit-open milk jugs but nothing else. Sometimes he hid waiting to surprise the mystery poacher. No visitors came except for the mosquitoes and "no see 'ems." Then, last March his luck changed one afternoon when he came across an ice chest near a pile of jugs.

Someone had attempted to hide the cooler under a few ferns. Alongside the cooler was a military-style back-pack filled with street clothes. The cooler was empty, but Miller was now convinced a poacher was in Ft. Drum.

The veteran game warden positioned himself about 200 yards from the cooler. He had a good view of the road and would easily see any vehicle that came to pick up the poacher.

Darkness came to the woods while the yellow glare of car headlights passed by on the nearby turnpike. Two hours of patient waiting and nothing. Miller was worried. Perhaps he had somehow missed the pick-up. He returned quietly to the cooler.

It, he noted with surprise, had been moved closer to the turnpike. The street clothes were gone and replaced with camouflaged hunting clothes. The officer peered into the cooler and discovered at least one wild turkey breast. The poacher had been back, might even be lurking a few feet away in the shadowy woods.

Miller took up another position about ten feet away. He didn't have to wait long. Around 7:30 p.m., a pick-up slowed

K-9 Officer Tim Miller gives full credit to his partner, Jake, for tracking down a rifle that led to the poaching conviction.

Page 6: Discarded milk jugs in the woods put game warden Tim Miller on the trail of a poacher which ended four years later with an arrest.

down on the turnpike and pulled over to the shoulder. A man got out from behind the wheel and walked to the tail-gate, pretended to urinate, looked both ways, and then pulled down the gate.

He moved quickly, grabbed the cooler, and lifted it up to the gate when Miller came out of the darkness at a full run, shouting: "Game warden! You're under arrest!" The officer took no chances and forced the suspect to the ground, and quickly put on the 'cuffs.

Miller radioed the Florida Highway Patrol for assistance and an officer arrived to take the suspect to county jail. An inspection of the cooler's contents revealed three turkey breasts, three beards and two sets of spurs.

Wildlife officer Billy Welbourn and K-9 Jake, a three-year-old German short-haired pointer trained specifically for wildlife enforcement, arrived. Miller is one of nine game officers who works with K-9s. Jake is his dog.

Miller took Jake back to the cooler to pick up the suspect's scent to track where he had been. At the same time, Welbourn walked along the shoulder of the road with a flashlight and found a tire track in the mud. A little while later he came across an identical track in a dried-up creek bed under a turnpike bridge about a mile away.

When the two reunited, Miller's interest rose when Welbourn told him about the vehicle tracks. Five years before, Miller had arrested a man for trespassing and littering who had hidden his truck under the same bridge. All very interesting, thought the 18-year veteran wildlife officer.

Now it was Jake's time to shine. The free-roaming dog swept through the woods to where Welbourn had found tracks. It took Jake only a few minutes to find a Marlin .22 Magnum and scope inside a plastic bag hidden among a patch of palmettos.

Jake's sensitive nose uncovered an important piece of evidence and linked it with the cooler, the footprints and other physical evidence. Miller had come to the end of the road that began with the initial discovery of some castaway milk jugs.

It was now clear why Miller hadn't seen anyone come to pick up the poacher. There was no accomplice. It was a one-man operation. James H. Brooks, Jr., would drop off his rifle, cooler, back-pack and hunting clothes and double-back down the turnpike and hide his truck under the bridge. He then walked the mile back to the drop-off. Passing motorists would see a man in everyday work clothes, evidently just another hitchhiker or stranded motorist.

Once traffic thinned out, Brooks would then melt into the woods. He would change into his hunting clothes, grab his rifle and start hunting. He would return with the wild game, place it in the ice-filled cooler, change back into civies, and walk back to the truck.

"This guy was a pro," Miller said. "I'm sure that he had gone through this routine many times. You have to wonder how much game he took out of Ft. Drum over the years? The poacher is a game thief who robs the honest hunter who follows the rules. That's the sad part."

Brooks pled guilty in county court to three counts of illegal possession of wild turkey on a wildlife management area. The judge fined him $625 and suspended hunting privileges for three years.

Not a bad night's work for a stubborn man who kept coming back for four years after discovering a pile of ripped-open milk jugs hidden under a palmetto bush. Maybe the honest hunters will have the Ft. Drum woods to themselves for awhile. Thanks to Tim Miller and K-9 Jake.

Lt. Jim Huffstodt is the public information coordinator for the FWC Everglades Region.

Florida's Top Ten Poached Animals and Birds

	1998 Arrests	Change From 1995
1. Deer	1,196	-19%
2. Alligator	163	-35%
3. Dove	111	-17%
4. Turkey	124	-3%
5. Duck	143	-16%
6. Squirrel	52	+73%
7. Protected species	100	-27%
8. Hog	93	+63%
9. Rabbit	10	-84%
10. Deer/Doe	31	-46%
Total	2,023	-19%

Any illegal killing and taking of wildlife is poaching!

Tom Evans

Source: Florida Game and Fresh Water Fish Commission, Division of Law Enforcement.

Patrick B. Walsh

Wildlife Management on Target

By Michael F. Delany

Avon Park Air Force Range in Highlands and Polk counties is the largest and most heavily used bombing and gunnery range east of the Mississippi River. It also contains diverse natural ecosystems and thriving wildlife populations and provides a wide variety of recreational opportunities. These seemingly incompatible activities are possible through a careful coordination of military maneuvers and wildlife management.

Avon Park Air Force Range was established in 1942 for military training during World War II. The 166-square-mile installation continues to serve as a practice area for fighter and bomber aircraft and for artillery and mortar field exercises.

Natural habitats serve as safety buffers around targets. Cypress swamps, freshwater marshes, dry prairie, pine flatwoods, upland hammocks and scrub are well represented on the range. Fire dependent plant communities such as dry prairie and scrub have benefitted from a long history of frequent bomb-ignited wildfires.

Another important mission at Avon Park Range is to manage natural resources and assess the environmental effects of military activities. Plant communities are inventoried and wildlife populations are closely monitored. Military training is often modified to minimize effects on wildlife and vulnerable habitats.

Several threatened and endangered species co-exist with the military, including Florida grasshopper sparrows, red-cockaded woodpeckers, Florida scrub-jays and scrub lizards. Forty-seven threatened or endangered plant species live on the installation. Habitats occupied by threatened and endangered species are actively managed to maintain these populations.

With so much undeveloped land, ▷

Tom Evans

The range protects a large area of diverse habitats.

Patrick B. Walsh

Pilots have trained at Avon Park Air Force Range since World War II.

Avon Park Range also provides outstanding opportunities for hunting, fishing, hiking, camping and wildlife viewing. The U.S. Air Force regulates recreational activities on 82,000 acres available for public use. However, because of ongoing military training, safety is a primary concern. Some areas are strictly off-limits, and vehicles are restricted to roads designated for public use.

The public entrance is at the terminus of County Road 64, nine miles east of the city of Avon Park. Weekend recreational permits for individuals or families may be purchased at the Natural Resources Office. Air Force personnel also conduct educational field trips for schools and civic groups. Pending military missions, the range is usually open from noon on Thursdays to 8:00 p.m. on Mondays.

Each year, 2,000 hunting permits are available through a computerized random drawing. Habitat management and a carefully regulated harvest provide healthy populations of game species.

Hunters on Avon Park Range have a long history of success taking deer, turkey, hog and quail. Other popular game includes rabbit, gray squirrel, mourning dove and waterfowl. This is a Type II Wildlife Management Area operated in cooperation with the Florida Fish and Wildlife Conservation Commission, and all state hunting and fishing regulations apply.

Recreational permit holders and their guests have access to numerous ponds and streams that provide fishing for bass, catfish and bream. In addition, three impoundments are managed for the production of channel catfish. Catches of two-pound channel catfish are common, with some weighing up to 13 pounds. A boat ramp is located on the Kissimmee River, and excellent bank-fishing is available for about a 10-mile stretch.

Three camping areas are available to permit holders. Each is equipped with water, picnic tables and primitive toilets. Two campgrounds also have pavilions and cold-water showers.

Thirty-two miles of hiking and interpretive trails provide opportunities to view wildlife in a variety of habitats. Long-distance hikers can use 12 miles of the Florida National Scenic Trail that crosses Avon Park Range. The $^1/_2$-mile Lake Arbuckle Trail features a 30-foot wildlife viewing tower, offering an impressive view of one of the largest undeveloped lakes in central Florida. The tower alone is worth a trip to the range. Depending on the trail and time of year, hikers can see bald eagles, swallow-tailed kites, Sherman's fox squirrels, otters, gopher tortoises, alligators and abundant wildflowers.

Another enjoyable activity on the range is to watch the military maneuvers. Low-flying cargo planes, helicopter gunships and B-1 bombers can be spotted. Even from a distance, F-16 jet fighter practice sorties are impressive.

Base commanders and natural resource personnel at Avon Park Air Force Range have effectively balanced military activities and sound wildlife management. The range provides important training for the Department of Defense, preserves an outstanding natural area of Florida and allows for its public use. For additional information on recreational permits, user fees and procedures for access, please call the Avon Park Air Force Range Natural Resources Office at (941) 452-4254. A recorded message at (941) 452-4223 provides opening and closing times for the upcoming weekend.

Michael Delany is a biologist at the Florida Fish and Wildlife Conservation Commission Wildlife Research Laboratory, Gainesville. Patrick Walsh is a USAF wildlife biologist at Avon Park Air Force Range.

Patrick B. Walsh

Two thousand permits are issued annually to hunt deer, turkey, quail and hogs on the range.

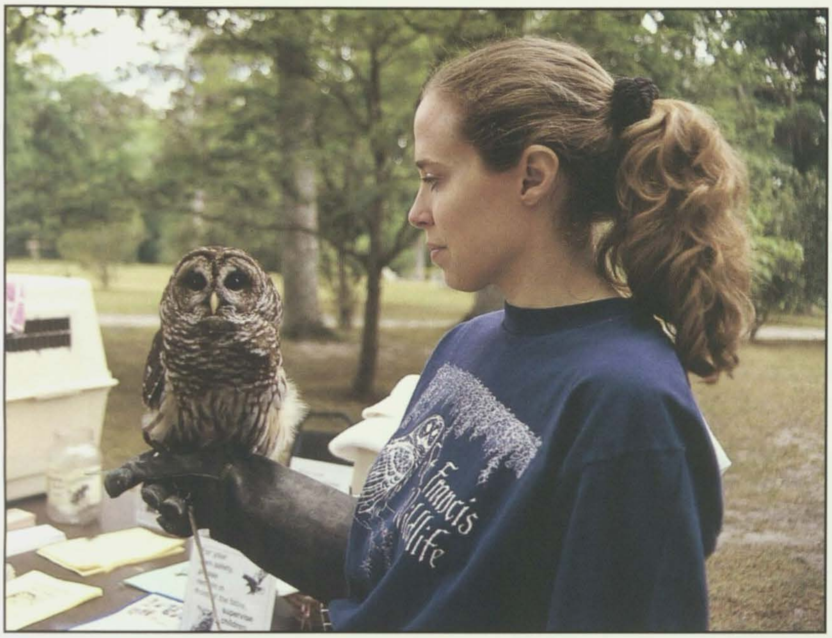
Wakulla Springs Birding Festival

Festival Photographs by Edward T. Lewis

In April the fourth annual Welcome Back Songbirds Festival was held at Wakulla Springs State Park.

Florida Game and Fresh Water Fish Commission (GFC) photographer Edward T. Lewis was there with more than 350 registered birders who came to celebrate the mystery of bird migration.

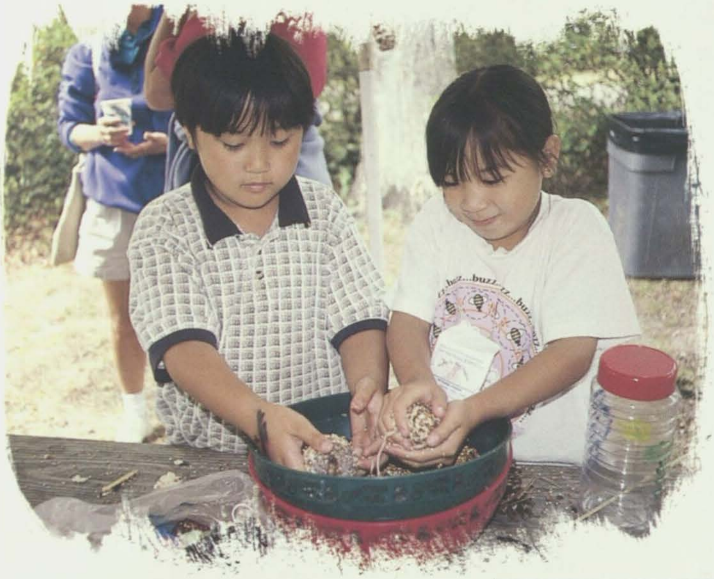
Welcome Back Songbirds Festival was sponsored by the GFC, Wakulla Springs State Park and Lodge, U.S. Fish and Wildlife Service, Wakulla County Tourist Development Council and the Florida & Apalachee Audubon Societies. Lora Silvanima of the GFC coordinated the festival.

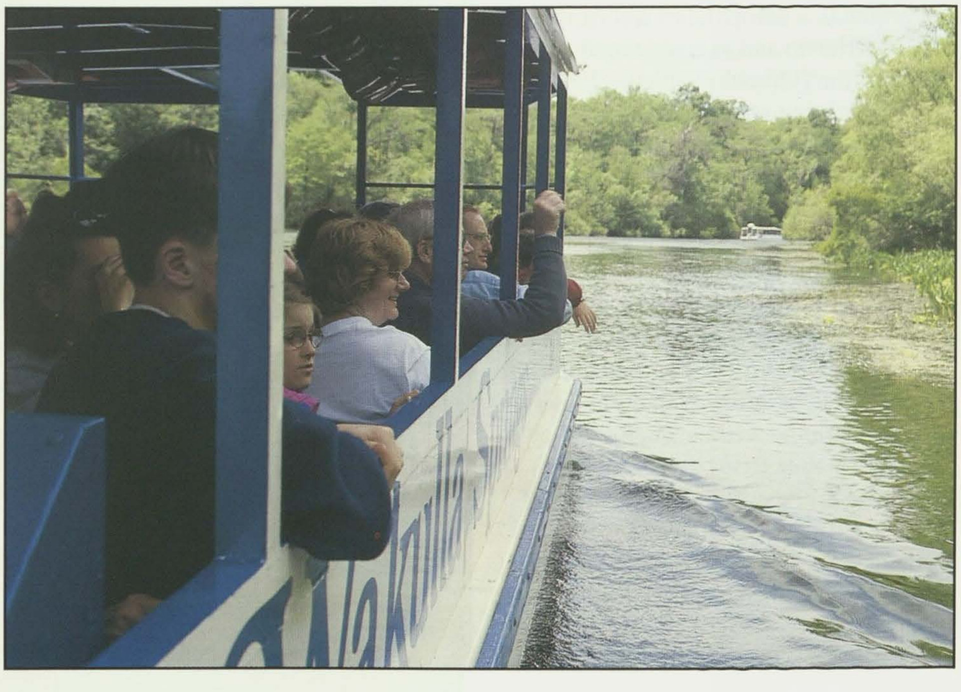


Fall Birding Festivals

October 2-4
Florida Keys Birding and Wildlife Festival, Marathon, contact Lori Haynes (561) 625-5122

November 11-14
Space Coast Flyway Festival, Titusville, contact Chamber of Commerce (407) 267-3036





(Top) April Arrington, developmental coordinator for St. Francis Wildlife, with a barred owl.

(Center Left) Children make pine cone suet feeders.

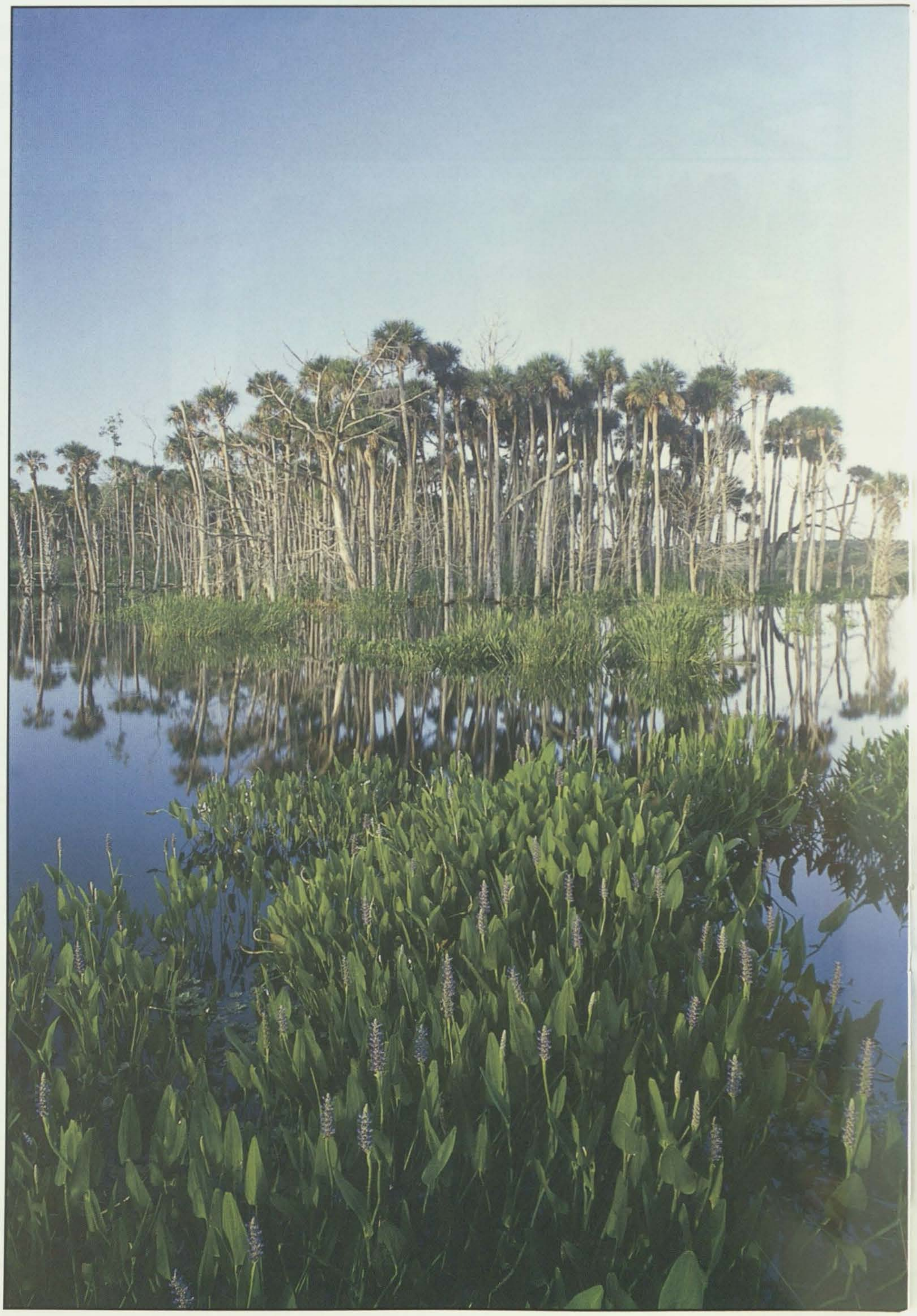
(Center Right) Making home made bird feeders at the festival.

(Right) A Wakulla Springs boat ride with Captain Tom Kennedy, Interpretive Tour Guide and Operator.

(Page 12) Participants birding at Wakulla Springs.

Orlando Wetlands

Text and Photographs by Mike Hegerfeld



When a hiker described a place where I could observe hundreds of wading birds and waterfowl and possibly see endangered species such as wood storks, snail kites and bald eagles, I assumed he was talking about the Everglades or Sanibel Island. My interest heightened when he mentioned an opportunity to encounter alligators, deer, hogs, raccoons and other creatures in their natural habitat. Then I learned this place was 40 minutes east of downtown Orlando and I became skeptical. How could a location with so much wildlife be so close to the many theme parks and central Florida attractions?

The skepticism vanished once I entered Orlando Wetlands Park. The park, which opened in 1987, is a large wetland designed to treat reclaimed wastewater. According to a pamphlet issued by the City of Orlando and available at the park entrance, the "Orlando Wetlands Park is the name given to that portion of the Iron Bridge Easterly Wetlands open to the public for nature study and peaceful enjoyment." Wastewater from parts of Orange and Seminole counties is pumped to the city's Iron Bridge Plant, and this treated water is then sent to the 1,200-acre manmade wetlands where aquatic plants further remove nutrients. It takes approximately 40 days for the reclaimed water to filter through the wetlands before reaching the St. Johns River. In building this wetlands park, the City of Orlando constructed 18 miles of berms to create 17 wetland cells. It also created an 80-acre lake to provide the necessary fill for the berms.

During my first visit, I was astounded

Park

> The Orlando Wetlands Park is truly a little known gem for hikers, birdwatchers or anyone else who just wants to spend a few hours enjoying nature.

at the quality of birds and other animals. It was quite early that chilly February day, dark in fact, when I first ventured onto the berm trails. The fog was thick and heavy. The quiet and stillness was eerie, the only noise came from my footsteps crunching on the cold ground. When I rounded a corner of the first wetland cell, I stopped to listen for any sounds and watch for movements of creatures that might be about. I could not believe my eyes; not 25 feet away was a deer. I knew he could not pick up my scent because a light breeze was blowing directly into my face, up wind from the deer. He was sniffing the air, trying to determine what I was. After several minutes he decided he wanted nothing to do with me and with a couple of leaps he was into the safety of the bush and gone. Then I happened onto a barred owl sitting 25 feet up in a cypress tree, calmly watching my progress along the berm trail. I came too close to his comfort zone, and he quietly took off from his perch and glided to a less-crowded location in the park. At the same time a great blue heron also decided to retreat to a safer harbor.

At dawn the wetland was ablaze with the golden rays of the winter sun breaking through a stubborn fog.

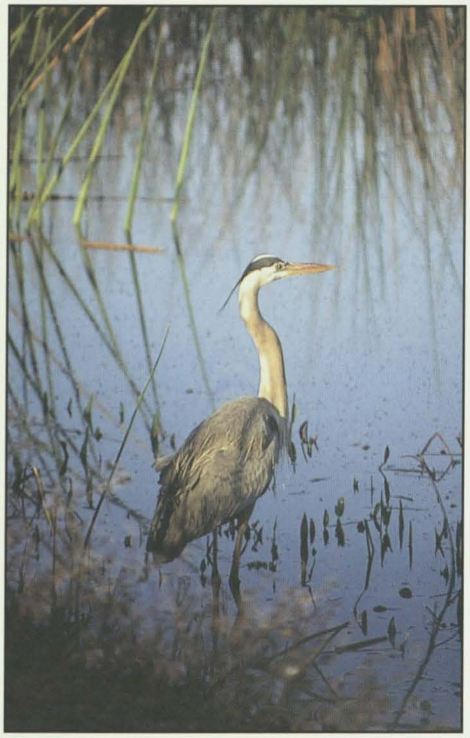
Great patches of ducks were huddling together in the ponds, trying to stay warm. The trees were full of great egrets, white ibis and limpkins. Anhingas, commonly known as snakebirds, were drying their wings in the branches of bare trees near the water's edge. The still of the early morning was beginning to come alive with the sounds of all the birds greeting a new day. This place is a birder's paradise.

Finishing my trek, I came upon a closed berm trail. Far off in the distance were two wild pigs moving rapidly toward me. They scampered up the trail, their noses to the ground churning the dirt like tiny bulldozers in search of food. Only when they were less than thirty feet away did they notice me, and I swear they were so startled they almost did back flips trying to get away.

The Orlando Wetlands Park is truly a little known gem for hikers, birdwatchers or anyone else who just wants to spend a few hours enjoying nature. And the best part if you live in central Florida, it's right in your own back yard.

The Orlando Wetlands Park is open from 7 a.m. until a half hour before sunset, seven days a week, January 21-September 30. It is closed October 1-January 20. Admission is free. For more information, call the City of Orlando Recreation Bureau at (407) 246-2288.

Mike Hegerfeld is a writer based in Winter Springs, Florida.



(Page 14) Pickerel weed and sabal palms at the Orlando Wetlands Park.
(Right) A great blue heron is one of the many wading birds that live in the park.
(Below) Sunrise at the Wetlands.

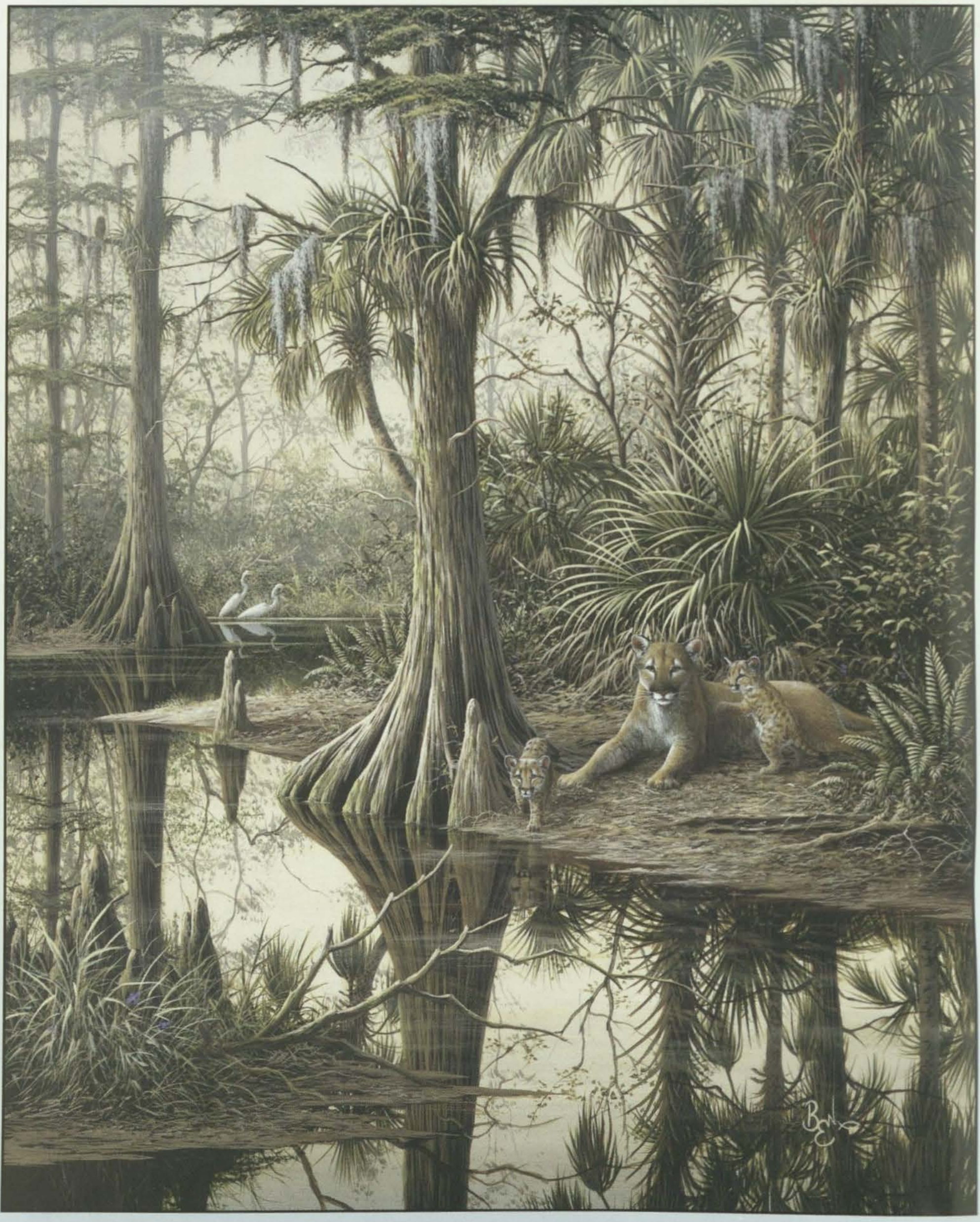
Artist Ben W. Essenburg

By Dick Sublette

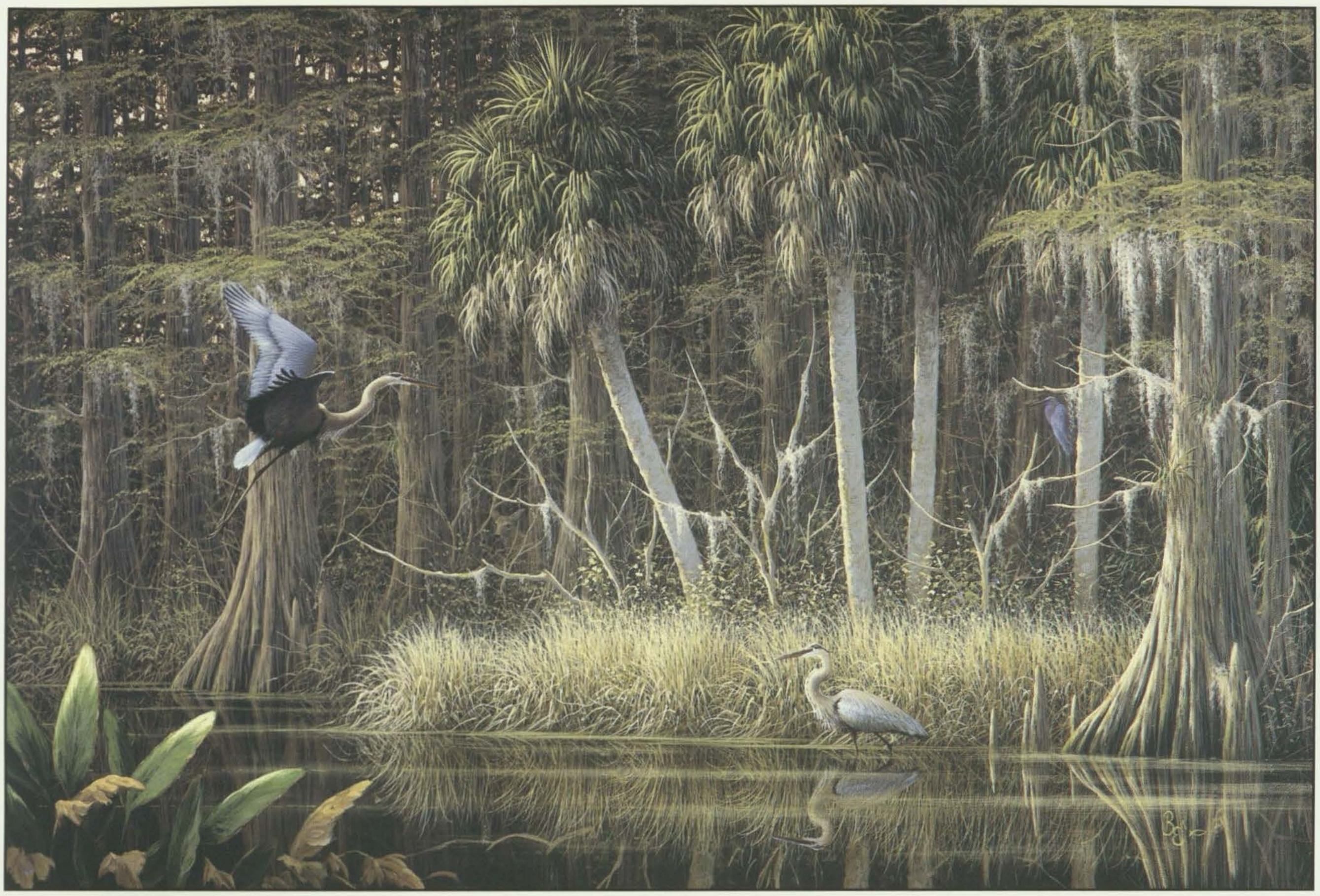
You can have a limited edition, signed and numbered acrylic print created by Ben W. Essenburg. This special opportunity through the Wildlife Foundation of Florida, Inc., includes *Recess*, *The Blues*, *Summer Games* and *Matinee* (page 18).

Ben W. Essenburg is a self-taught artist who has participated in nearly every major Florida art festival, and has won numerous best in show and first place in painting awards. In 1993 Essenburg was named artist of the year by the Florida Conservation Association. His work has been featured on the cover of the Florida Audubon Society's *Florida Naturalist* and he has published 24 reproductions of his work in limited editions, 17 of which are sold out.

About his work Essenburg said, "It is my intention not merely to accurately portray an animal or landscape, but to use color and composition to create a sense of time and space."

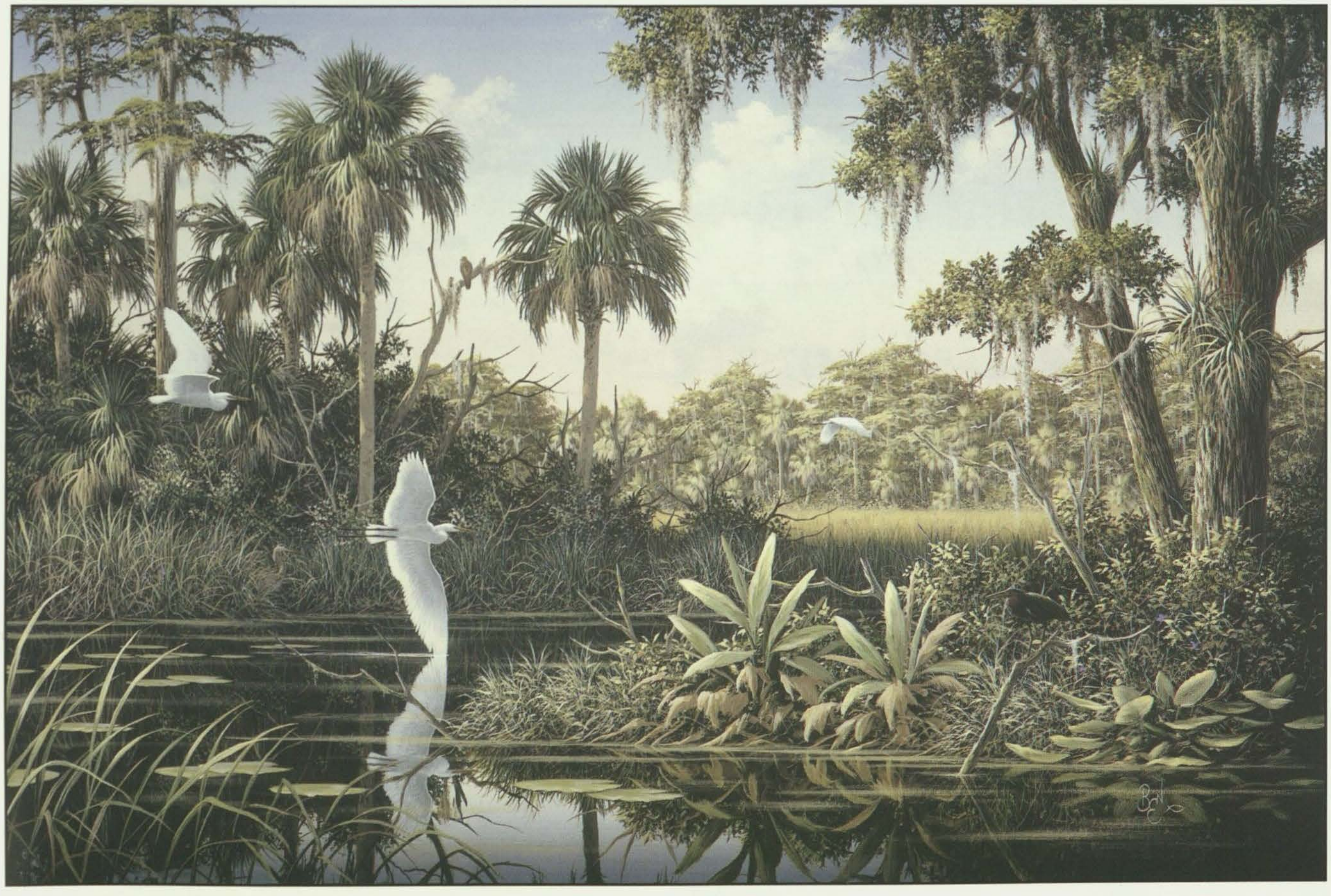


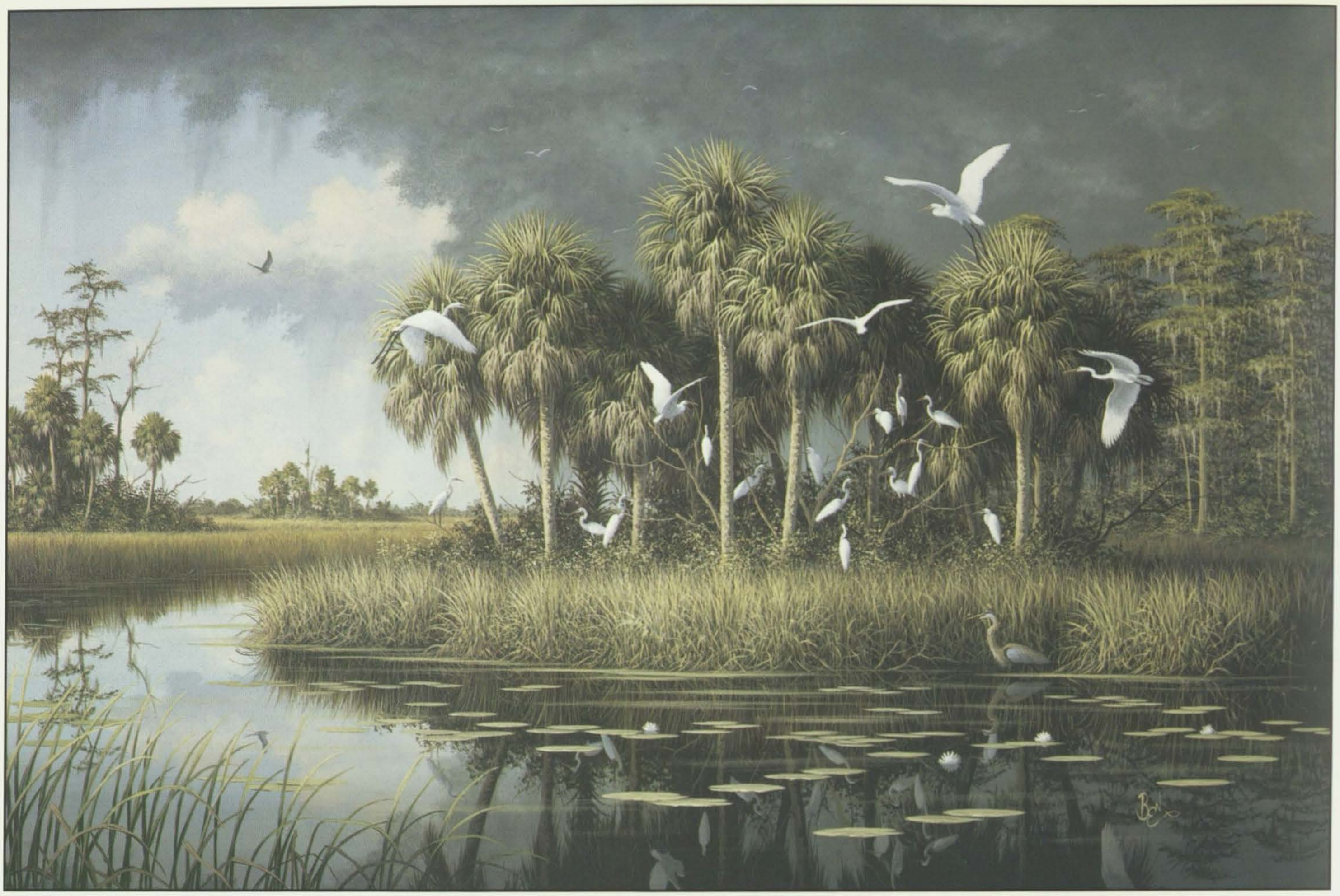
RECESS, a limited edition of 750, image size 25x20, sheet size 29x24.



THE BLUES, limited edition of 500, image size 25x17, sheet size 28x21.

SUMMER GAMES, limited edition of 700, image size 20x30, sheet size 24x33.





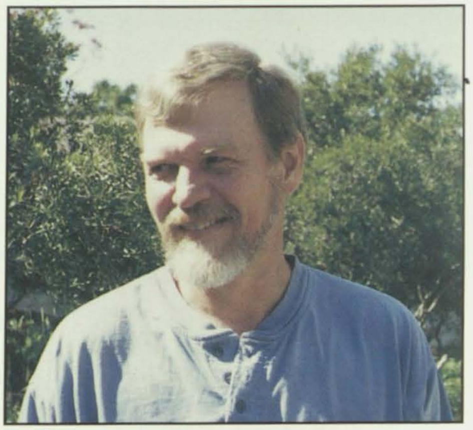
MATINEE, limited edition of 750, image size 18x27, sheet size 22x31.

How You Can Own a *Signed and Numbered* Ben W. Essenburg Print

To order a print, please send a check or money order to the Wildlife Foundation of Florida, Inc. Ben Essenburg Prints, 620 South Meridian Street, Tallahassee, Florida 32399-1600.

Each print offered will be signed and numbered by Ben W. Essenburg and shipped in a flat container via UPS. Each print costs $80. There is a $10 shipping charge per order. Multiple prints may be shipped as one order. Florida residents please add $5.60 tax for each print ordered.

Proceeds will be deposited with the Wildlife Foundation of Florida, Inc., a not-for-profit foundation. One-half of the print cost will help defray the *Florida Wildlife* magazine's manuscript, art and photography expenses.



Essenburg was born in Oak Park, Illinois, in 1947. He has been a Florida resident since 1970. Essenburg resides in Englewood with his wife Jill and their four children.

The Fish of Richloam

Richloam Fish Hatchery Enhances Florida Public Waters

By Charles C. Starling

A 1960s era Sumter County hatchery quietly exceeds the production of many state-of-the-art facilities. The Richloam Hatchery ranks among the more productive fish hatcheries; it is second in the southeast for striped bass and sunshine bass and produces up to four million fish annually. The fish are stocked in public waters throughout the state for sport fishing.

During the past three decades Richloam has created the sunshine bass and developed numerous procedures now used by private and public hatcheries across the nation.

Here's a review of the fish of Richloam.

Largemouth Bass and Bream

Introduction of largemouth bass, bluegill, redear sunfish and crappie can jump start a fish community that otherwise would take years to develop on its own. Flooded muck farm properties in Lake County are examples where fishing opportunities were created after bass and bream were stocked.

A Richloam innovation will lead to the tightening of many anglers' lines. Biologists curbed the largemouth's natural instinct to eat only live food and trained them to feed on commercial chow. This enables Richloam to produce bigger bass. Young fish sail through vulnerable life-stages at the hatchery, and hardy yearling fish can be released in lakes to control over-crowed forage species. This should provide more fishing for largemouth fans.

Striped Bass

Dams, channels and shoreline deforestation have diminished striped bass' ability to reproduce in the wild. ▷

Charles Starling

The fish could very well disappear from Florida without human intervention. Hatchery stockings from Richloam replenish striped bass populations in the St. Johns, St. Marys, Ochlockonee and Apalachicola Rivers. Biologists exercise care each year to ensure that the stripers from the Atlantic and Gulf rivers are not compromised by mixing of stocks. Richloam has created an abundance of striped bass and an easing of fishing and harvest regulations.

Sunshine Bass

The sunshine bass was created at Richloam to control forage fish in nutrient-rich waters. The offspring of striped bass and white bass are vigorous predators that prefer shad for dinner. Anglers were delighted to find that this aggressive fish was a thrill on the fishing line and tasted great.

Known as whipers, swipers or simply striper hybrids in other states, the fish is called sunshine bass in Florida. In 1973 Richloam was the first hatchery in the world to cross a striped bass male with a white bass female, and has remained the leading producer of sunshine bass.

Charles Starling

Many people's first fishing experience is catching a Richloam-raised fish.

Channel Catfish

Rapid population growth and economic development degraded metropolitan area lakes and rivers in Florida. The lack of fishing opportunities led to fewer people enjoying the sport.

The Urban Pond Program created "put-and-take" fisheries by stocking Richloam-raised catfish in small lakes to reintroduce fishing to city residents. The Florida Fish and Wildlife Conservation Commission sponsors derbies and educational clinics for children, and provides special programs to assist physically challenged anglers. For many participants their first fishing trip is spent trying to catch a "Richloam fish."

How Fish Are Produced

Largemouth bass and sunfish reproduce by natural courtships in hatchery ponds. The advantage of growing them at the hatchery is protection against hazards such as predators and diseases. Technicians analyze water chemistry and review culture practices on a daily basis to assure that nutrition, health and water quality needs are met.

Some species will not spawn in captivity. Biologists inject striped bass, white bass and grass carp with hormones to induce them to spawn. Eggs are manually removed from these species and mixed with sperm to achieve fertilization. They are incubated in hatching jars that simulate natural incubation requirements. Fry live off the egg yolk for several days in aquariums. When fry are ready to start eating, they are transferred to hatchery ponds where technicians manage conditions to promote continued growth.

Catfish eggs are bound in a gelatinous glob. Technicians dissolve eggs from this gel so they can be incubated in hatching jars.

Carp require an extra step of care too. Every grass carp delivered from Richloam is certified to ensure that only sterile fish are carried to public waters.

Richloam by the Numbers

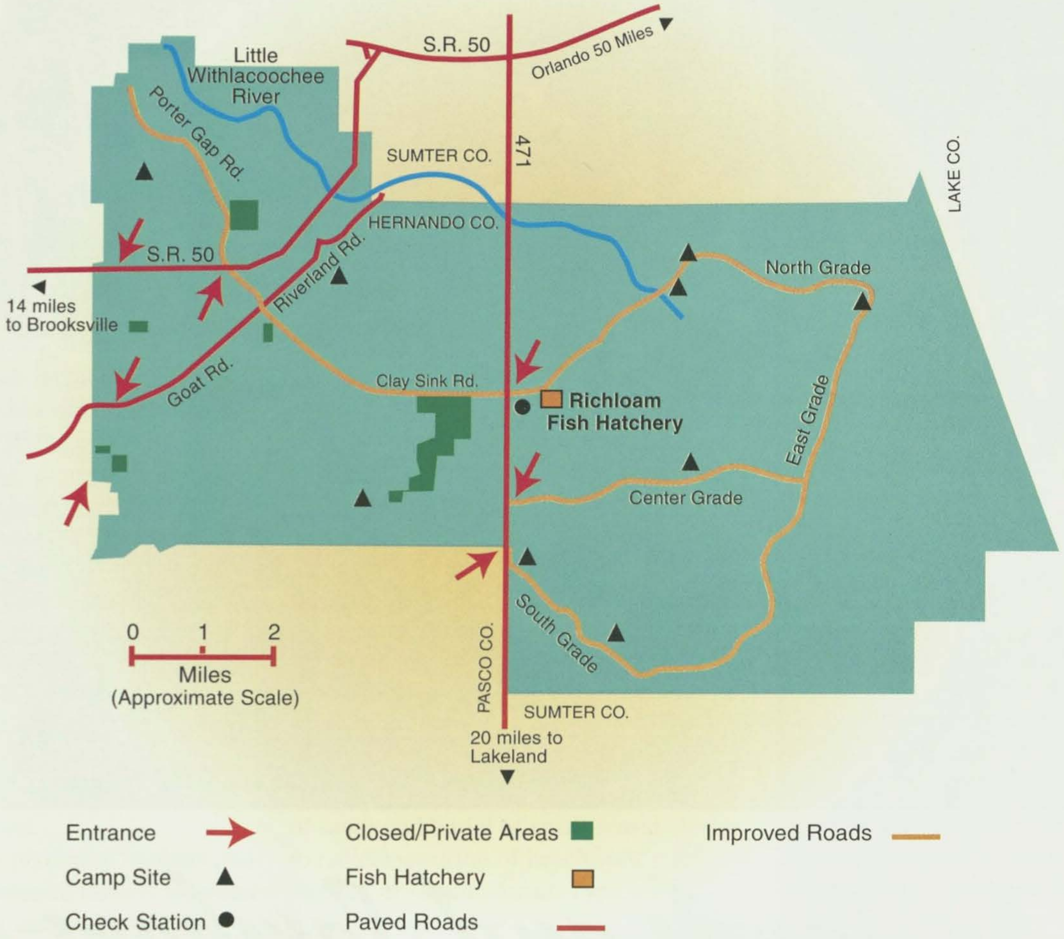
Richloam's annual budget is about $300,000. The value of its crops exceeds one-half million dollars per year and, ultimately, the recreational value of stocked fish adds about $1.75 million per year to the state's economy.

The 186-acre hatchery is located in Sumter County on Highway 471 about 11 miles south of Webster. It lies near the center of Richloam Wildlife Management Area in the Withlacoochee State Forest. The hatchery uses 77 earthen ponds and six buildings to produce fish. The numerous cypress swamps attract birds and other wildlife.

Visiting hours are 8 a.m. through 5 p.m. weekdays. Although no special services are offered, hatchery guests are welcome to walk around the facility and observe fish tending and harvests. Hosted group tours can be arranged by calling (352) 583-3545 for an appointment.

Charles C. Starling is a biological administrator at the FWC Richloam Fish Hatchery.

RICHLOAM
Wildlife Management Area



Lt. Joy M. Hill

RICHLOAM HATCHERY

- **Created the sunshine bass**
- **Second in the southeast for striped and sunshine bass**
- **Produces 4 million fish annually**

Richloam procedures are copied by hatcheries nationwide.

The Sands and Sambars of
ST. VINCENT ISLAND

By Thomas W. Doyle, Ph.D., and Ken W. Krauss
Photographs by Thomas W. Doyle

From a bayside sand bank, we gazed upon the approaching ferry that was to carry us across Indian Pass to St. Vincent Island, off of the Florida Panhandle. After only a short ride across a channel that is often teeming with tarpon, we drove onto St. Vincent National Wildlife Refuge (NWR), affectionately known by locals as "mosquito island."

At first glance, there are very few differences between our new surroundings and pine flatwoods throughout the Gulf coastal plain. It quickly became apparent that St. Vincent NWR had a healthy population of an exotic deer, a reestablished pair of red wolves, many other threatened and endangered species, and freshwater ponds with thriving populations of largemouth bass and wood ducks, all under a cloak of intensive forest management.

St. Vincent Island became part of the National Refuge System in 1968. Located approximately 80 miles southwest of Tallahassee, the barrier island sits on the west end of Apalachicola Bay protecting the port city from the pounding surf of hurricanes and winter storms. It is one of the larger islands in the barrier chain along the Florida Gulf Coast, and is distinctively triangular in shape, 9 miles long and 4 miles wide. Prior to refuge status, St. Vincent Island remained undeveloped and used primarily for ranching and hunting purposes. In 1908, Dr. R. J. Pierce purchased the island to create a hunting mecca stocked with exotic game animals, including the still resident "sambar" deer of Southeast Asia. During World War II, the island was logged of its "virgin" pine stands, but otherwise was managed as a private game preserve before eventually becoming a national wildlife refuge.

Sambar deer tracks.

The roads and habitats of St. Vincent Island follow the contour of the many parallel sand dune ridges and swales that run east to west across the island. Our drive took us along and over historic beach ridges 3 to 10 feet high and by diverse ponds and wetlands in the interdune depressions.

The island is a myriad of habitats and ecotones in a compressed mosaic between bay and flats, ridge and swale, of high floral and faunal diversity. Tidal marshes transition into slash pine and cabbage palm hammocks that grade into scrub oak dunes and xeric sandhills on the ridge tops. Just as ridges support more drought-tolerant plants, swales, the area between the ridges, support characteristic vegetation of typical pine flatwoods on the slopes and freshwater sawgrass marshes in the wet bottoms. Cabbage palm forests are quite prevalent at the edges of salt marshes and bayside flatwoods and swaying sea oats and slash pine line the beachfront dunes along the Gulf.

St. Vincent's south shore is an eroding beach exposed to the open Gulf and perpetual surf. Our vehicle weaved about the remnant stumps and snags of former pine giants that now dot the shallows and tell the history and fate of a former shoreline. Our quest was to sample the surviving trees of slash pine for old-growth that would reveal past secrets of island climate and history, most notably hurricanes.

Hurricanes have a profound effect on the ecology and erosion of barrier islands. The wind and surge intensity of tropical storms can range from simple reworking of sands and burial of small seaside forbs to radical scouring of beachfront and dieback of seaside forest. Typically, forests on the coastal edge of the Gulf of Mexico retain the mark of one or more hurricanes in suppressed and released growth patterns evident in the tree-ring record. St. Vincent Island is located along a section of the northern Gulf that experiences some of the lowest incidences of hurricane landfall. Over the last century, only two or three hurricanes have hit the island with winds greater than 100 ▷

At the turn of the century the island was stocked with exotic game animals.

background photo by Marc Epstein

mph which is less than half the frequency comparatively for south Florida and western Gulf beaches.

In addition to natural perturbations, St. Vincent NWR is on a seasonal regiment of prescribed burns. Spring burns allow for the reproduction of grasses, including the federally threatened wiregrass communities, and many woody plant species, while summer burns enhance fruit production in other plants which benefit wildlife. They also reduce the amount of fuel for natural occurring fires and prevent damage to the forest by lessening the intensity of burns when they do occur. Without controlled burns, fuels may build up to the point where a fire, whether natural or arson-related, would result in catastrophic forest destruction.

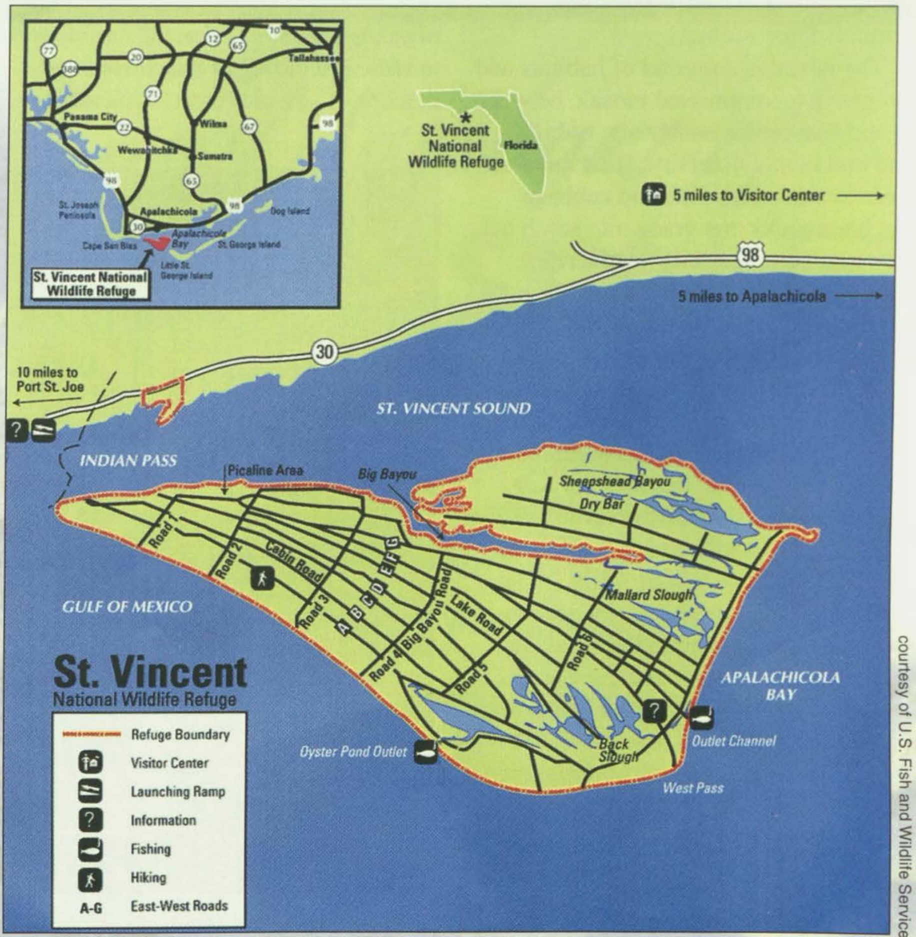
Our visit to St. Vincent NWR was part of our research of hurricane, fire and harvesting impacts on Gulf Coastal pine forests. We bored trees with a small hollow auger device and extracted a pencil-sized core sample and cross-section of the interior wood. Then the cores were mounted and sanded to display and measure the annual growth rings. This enabled us to construct tree-ring chronologies for St. Vincent by measuring the average ring size and width of a group of trees for like calendar years. Tree age and changes in growth pattern within a chronology can be used to reconstruct impacts of management practices and natural disturbances on forest growth and ecosystem dynamics.

Our collection included 30 mature pine trees selected from various habitats across the island. Interestingly, all cohort or tree age classes were uniquely associated with the prominent land use changes of island history. Tree ages ranged from 49 to 132 years old, the younger trees dated to a logging period during the 1940s and the older ones to the Civil War. An intermediate age class of trees was also prevelant and coincident with the island purchase by Dr. Pierce and the beginnings of an exotic game preserve following the turn of the century. Growth following the logging activity of the early 40s was also evident in the chronologies of some older trees.

St. Vincent trees date to the Civil War era.

Fire scars, which degrade wood quality and decrease market prices, were noticeably few due to the lack of high-intensity fires, perhaps due to frequent controlled burns. Some trees showed slow growth before and after the turn of the century that indicate the possible influence of hurricanes, fire outbreaks, stand overstocking or even abrupt changes in grazing patterns. Most of the sample set, particularly the younger trees, show rather uniform age and size-related growth patterns with sensitive year to year variation due to dry and wet years.

The impact of hurricanes Elena and Kate in 1985 were evident in these chronologies. A change in stemwood distribution following a major hurricane is often indicative of wind or surge damage. Crown or root damage on the windward side is often more extensive in hurricane impacted trees. In this case, trees produce less radial growth increment and more foliage in an attempt to restore damaged photosynthesis functions. The hurricane of 1894 appears to have caused some damage to the island forest as evidenced by a growth spurt of some trees in later years. It is possible that the loss of neighboring trees during



courtesy of U.S. Fish and Wildlife Service

St. Vincent Island is 9 miles long and 4 miles wide and is accessible only by ferry.

this severe storm provided favorable conditions akin to thinning the forest.

In spite of the ever-present threat of a major hurricane on St. Vincent NWR, one purpose of the refuge is to provide habitat for migratory waterfowl and federally listed threatened and endangered species. Currently, bald eagles are found nesting in slash pines adjacent to salt marshes, loggerhead sea turtles frequent St. Vincent's beaches to lay eggs, indigo snakes are found securing shelter in gopher tortoise burrows, and wood storks and peregrine falcons use the marshes and forests of St. Vincent NWR for foraging and stop-over habitat during annual migration. A pair of breeding red wolves reside on the island. St. Vincent NWR is an "island propagation site" for the red wolf recovery program, producing animals with wild experience and to augment declining mainland wolf populations. As with all island populations, the threat of total destruction of St. Vincent's habitat is possible in any given year from a major hurricane or wildfire. Management of the island helps maintain a diversity of habitat and provide multiple shelters for almost 100 non-avian species.

St. Vincent NWR provides a number of public recreational opportunities as well. Large sambar deer, an introduced Asian exotic, still thrive on the island and offer visitors quite a thrill when these 300 to 700 pound giants are spotted strolling through the woods. White-tailed deer, feral hog and raccoon make up the other eligible game species on the island. It is common to find tracks of these mammals, the result of nocturnal forays, on the beachfront and bayflats. In addition, the island's five freshwater lakes have an abundance of gamefish, including trophy-sized largemouth bass and bluegill, and year-round surf fishing. Birding on St. Vincent NWR can be equated with similar experiences found in the nearby St. Marks NWR, with over 249 species identified. The only limitation to these recreational opportunities is that of access, which is only by boat.

With this unique blend of managed habitats and watchable wildlife, St. Vincent NWR stands out as one of the Panhandle's more diverse habitats and one of Florida's little known and valued natural treasures. To our delight, and hopefully yours, the sands and sambars of St. Vincent Island have withstood historic changes in ownership, sea-level and recurring hurricanes to offer timeless views of its eroding and exotic past.

Thomas W. Doyle, Ph.D., is with the U. S. Department of Interior National Wetlands Research Center, Lafayette, Louisiana. Ken W. Krauss, photographer, is with the U.S. Department of Agriculture, Institute of Pacific Island Forestery, Honolulu, Hawaii.

Fabulous Florida

Text and Photographs by Donald Mammoser

The world below me is wet and looks as if it has always been so. I am dry and consider myself lucky as I explore the swamp. The weathered boardwalk between me and the murky waters provides a welcome solace. Because of the boardwalk, I travel with ease and my mind and feet wander ever deeper over the swamp. Out here I view nature firsthand. The plants and creatures of the bog impress themselves upon my mind just as the sounds they make echo in my ears.

Florida is a land of swamps and water. Human beings, it seems, were not meant to tread here. But to adventure into lands where we are not meant to be is our nature. So we come and our curiosity drives us forever deeper into the swamps, where echoes of unseen creatures spark our imagination and pique our curiosity. Staying out of harm's way is paramount because the swamp is home to meat eaters larger than humans.

A boardwalk allows the curious weekend adventurer a chance to easily see, touch and explore ecosystems which otherwise would be largely inaccessible. Investigating a swamp by wading through it can create a great case of "swamp willies" in all but the most hardened of explorers. The tannin-stained waters conceal the actions of swimming reptiles and other creatures.

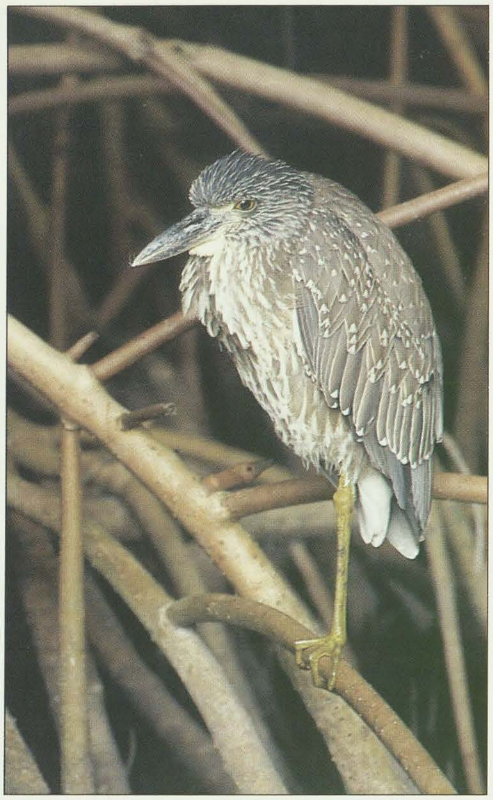
But explore we must, and to sightsee and touch nature seems an ancient wish. On a boardwalk I have safely viewed, photographed and learned about venomous snakes, leaping lizards and giant alligators. (The later of which always seem larger than they probably are). I have seen birds of all types performing an array of behaviors, and it has always been a feast for my eyes. Once a green heron caught, wrestled with and swallowed whole a six-inch panfish. Another time a great blue heron, from its perch on a

Boardwalks

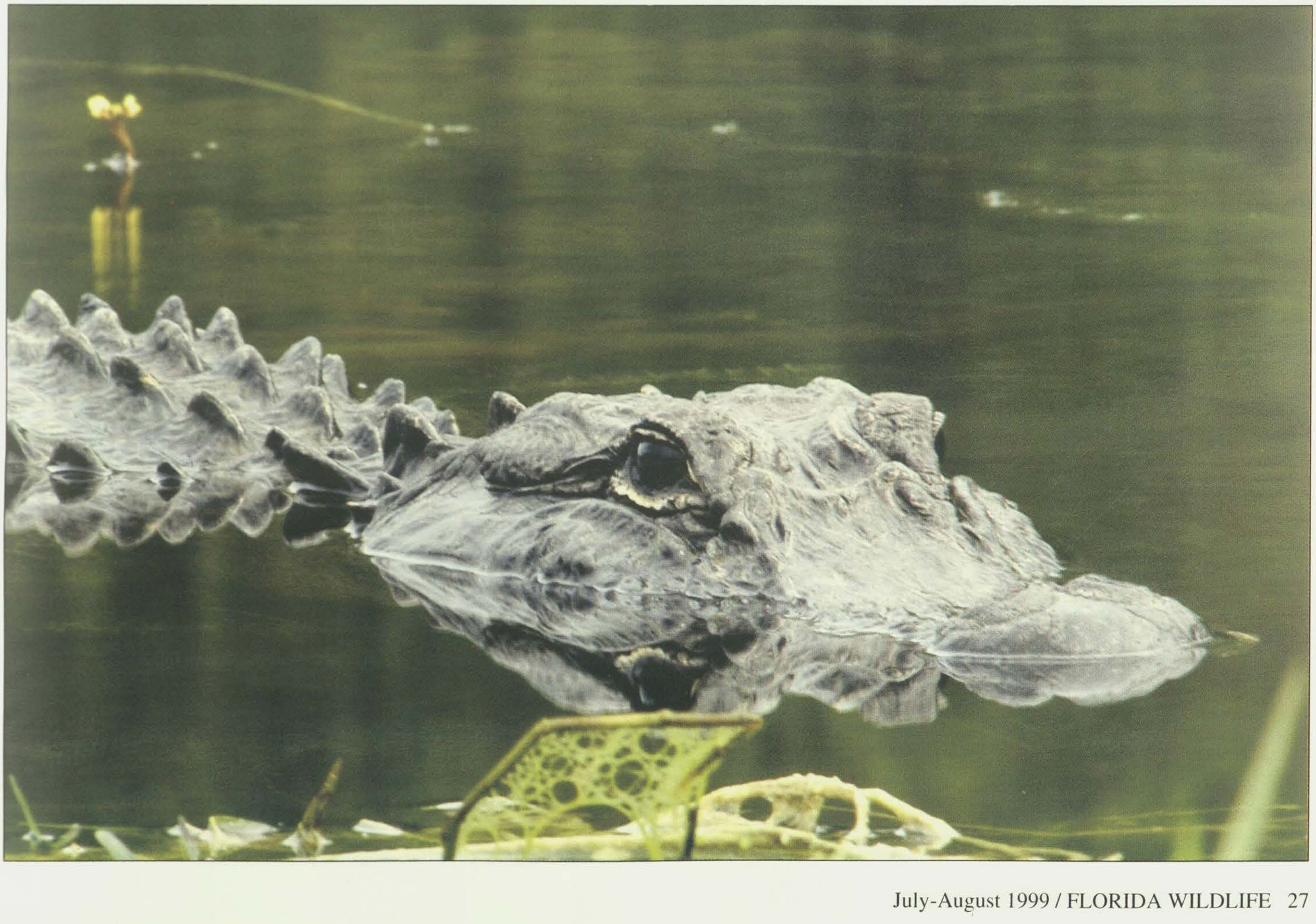
cypress knee, displayed bolting reflexes as it snatched dragonflies out of mid-air flight.

A boardwalk takes me far into a swamp. As I drift deeper and deeper away from civilization, I leave all unnatural sounds behind and the bog plays its music to my ears. This is the realm of quieter sounds, far from screaming automobiles and roaring crowds. The pig frog calls out with a "GGGRRRUUUGGG GGGRRRUUUGGG." The limpkin cries a harsh, ghostlike scream and the alligator bellows a resounding growl. Here there are no piped-in musical pieces, emanating from speakers that look like rocks. There may, however, be the occasional helpless squeak of an unlucky tree frog caught by a snake which blends in perfectly with the hanging vines.

Ahead of me plant life turns into a twisted mess of green. Strangling vines, ferns and cypress trees grow in confusingly thick clumps. So much Spanish moss hangs from tree branches that even the Florida sun is dimmed. The boardwalk lets me walk with ease among this jumbled tangle of growth. Cypress knees and tree buttresses create odd patterns and crazy shapes made doubly interesting as they become reflected in calm waters. Just below those waters there may exist huge ▷



Boardwalks are a safe way to get close to a limpkin (above) and an alligator (below).



carnivores which view me as a large meal. I glide right on past without an ounce of fear. I travel silently. No motor propels me, nor do my feet break the stillness of the shallow water.

Boardwalks reveal the essence of Florida. They provide a welcome path to visit and explore a freshwater or mangrove area.

During this country's worst economic crisis, young men from rural farms and big towns alike were busy slapping mosquitoes while nailing boards together which led into Florida swamps. From 1933 to 1942 the Civilian Conservation Corps (CCC) was possibly Franklin D. Roosevelt's most popular agency. A dedicated group of paid volunteers pulled together and worked to get the country on its feet again. Some of the projects they completed allow people today to explore an otherwise inaccessible area.

To become part of the CCC a young man (always called a "boy") had to be between 17 and 25, poor and jobless. The work was hot, wet, miserable and even scary at times. But, as CCC veteran Harry Dallas told writer Donald Jackson, "there was pride in the work. We built something, and I knew I helped and I saw the result. I learned a work ethic, how to do things safely and right. It was something you could take pride in, and there wasn't a lot of pride available in those days."

Highlands Hammock State Park was developed by the CCC. In 1935 it became one of four state parks and was home to a base camp for the Corps. As Park Ranger Andy Anders told me, "The boardwalk of our Cypress Swamp Trail follows the original path laid out by the men of the CCC sometime between 1933 and 1941." That original "catwalk" has been rebuilt, but the park "maintained the historical perspective as much as possible." This includes a section of narrow, winding walkway, complete with leaning and tilting areas and railings on only one side. It's a path that's not meant for the unsteady visitor. To walk on this historical trail, visit Highlands Hammock near Sebring. Call (941) 386-6094.

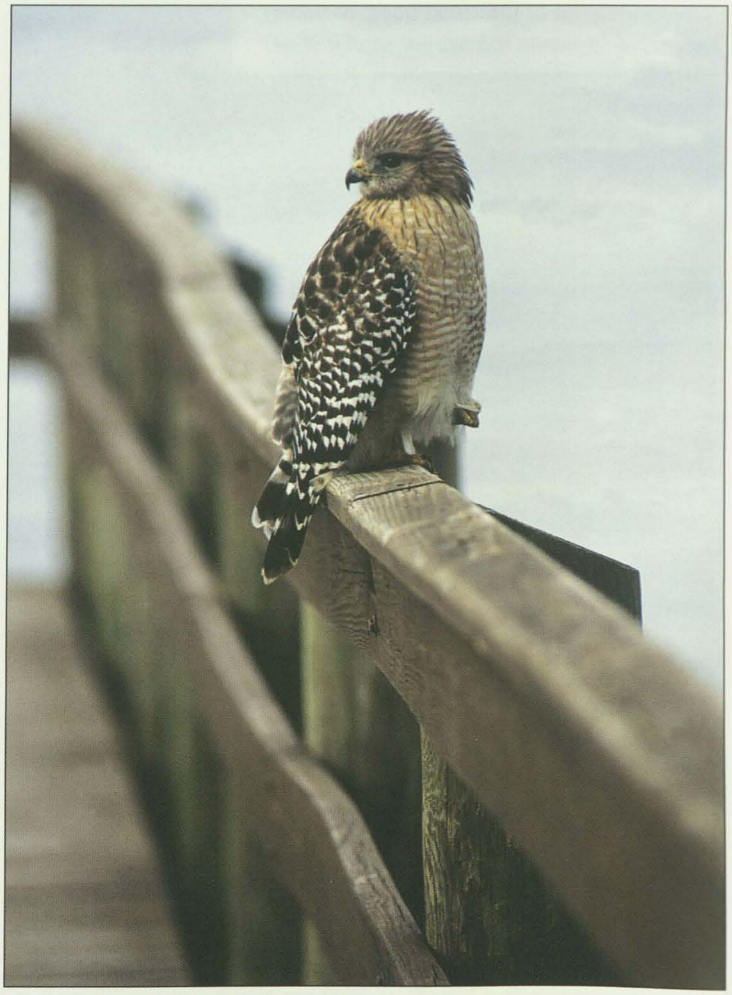
On the other end of the comfort zone is Audubon's Corkscrew Sanctuary's brand new, double hallway wide, two-mile-long boardwalk with full railings on both sides. It has numerous viewing platforms and seats for resting and watching wildlife at Audubon's Corkscrew Sanctuary. As Susan Cerulean tells us in her *Florida Wildlife Viewing Guide*, this "boardwalk winds through pinelands, wet prairie, marsh, lakes, and the world's largest remaining subtropical old-growth bald cypress forest." In the springtime, nesting wood storks sometimes raise their young right above this fantastic boardwalk. For information on this sanctuary near Naples call (941) 657-3771.

The 0.4 mile long boardwalk at Loxahatchee National Wildlife refuge near West Palm Beach was built in (circa) 1972. Thousands of visitors a year walk this semicircular trail so it needs periodic repairs. A group of dedicated volunteers works to keep the boardwalk in top shape. I called these guys the Fabulous Five when I had the pleasure of working with them a few years back. They replace boards only when safety becomes a factor, but I personally prefer the old, weathered boards which become, after awhile, the color and texture of cypress bark. The shiny new boards just don't seem to have any character! If you visit this great boardwalk, sit for awhile on the benches about halfway into the walk and you may see a family of playful otters or a pair of nesting great horned owls. Also, please stop and thank a volunteer for providing you with this easy means of exploring a swamp. Call (561) 734-8303.

A boardwalk rejuvenates my soul, I listen and absorb the sights and sounds of nature. Boardwalks allow close-up learning and enjoyment of an otherwise impenetrable natural area. This is the Florida too few visitors experience. It is a place where the only lines are the receding hand rails on either side of the boardwalk.

For further information, or to find you own fabulous Florida boardwalk, get a Florida state parks guide or one of the following books: *The Sierra Club Guide to the Natural Areas of Florida* by John and Jane Perry, *Exploring Wild South Florida* by Susan Jewell and *Florida Wildlife Viewing Guide* by Susan Cerulean and Ann Morrow. Use these references as a guide for finding a boardwalk. Then let your curiosity escort you as you wander above the waters of a swamp and wonder. ◆

Donald Mammoser is a frequent contributor to Florida Wildlife *and lives in Tampa.*



Sometimes a boardwalk is a good place to sit.

BOOK REVIEW

***Beechers, Stowes, and Yankee Strangers*: *The Transformation of Florida*,**
John T. Foster, Jr and Sarah Whitmer Foster
158 pages (Gainesville: University Press of Florida)
Price $24.95
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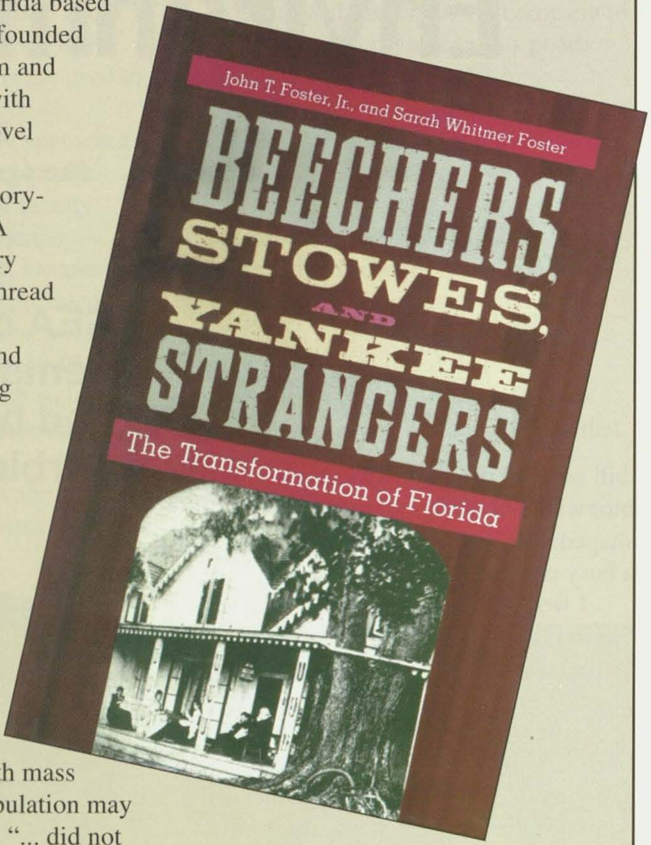
John T. and Sarah Whitmer Foster create a lively, entertaining book that focuses on northern immigrants living in Florida during Reconstruction. *Beechers, Stowes, and Yankee Strangers* tells the story of an eclectic group of social activists working amidst the remnants of a slave economy and the political intrigue found following the war between the states.

Covering the 1860s to 1890s, this is volume eight of the Florida History and Culture series published by the University Press of Florida. The series aims to highlight the state's distinctive heritage and character, and this the Fosters accomplish very well. Much has been written about carpetbaggers, the rise of Jim Crow laws and the Ku Klux Klan. Here's another side of the period: the reformers, educators, ministers and entrepreneurs who came to Florida and laid a foundation upon which a modern state was built.

The Yankee strangers had a plan. To counter southern leaders they found to be a "heartless and aggressive aristocracy," they would urge more folks like themselves to move to Florida. "We want to outvote traditional southerners and hold them as a helpless minority," wrote Methodist Episcopal minster John Swaim.

Swaim comes across as a fascinating character in the Fosters' account. Living in the poorest and least populated state in the south (the 1870 census placed fewer than 200,000 people in Florida), he foresaw how the state would develop over the next 100 years. Swaim and Harriet Beecher Stowe, Charles Beecher and eventual Governor Harrison Reed were part of a group that envisioned a "... vibrant Florida based upon democratic ideas and founded upon an economy of tourism and Yankee residents - people with investments in citrus and novel crops."


John T. Foster, Jr., and Sarah Whitmer Foster
BEECHERS, STOWES, AND YANKEE STRANGERS
The Transformation of Florida

The Fosters are good storytellers with good material. A distant relative's pocket diary for the year 1866 begins a thread they weave with newspaper reports, magazine articles and documents into a compelling account. The reformers; former abolitionists, suffragists and activists dedicated to Christian service, had their hands full. Their stated method to creating a "vibrant Florida" did not go unnoticed by Floridians who had misgivings about the major social and political change that would come with mass immigration. The native population may have recently lost a war but "... did not see that secession and treason were either an evil or a wrong ... they had but a single regret concerning the rebellion, that is that it did not succeed." Tension existed between the Florida natives and Yankee strangers.

Once the Gilded Age reformers identified a problem, they stubbornly pursued its solution. Swaim and Harriet Beacher Stowe wrote about 100 newspaper and magazine articles and two books to entice people to move to Florida. Their ally, Governor Reed, believed this was of the "... highest importance to the present and future prospects of the state." After three years his efforts attracted 40,000 newcomers and he was impeached twice by conservative Democrats. Reed's ability to survive the plots to remove him from office showed impressive political skill and courage but later one wonders about his character. Charles Beecher retreats to a small village and after a period of solitude joins the struggle to establish a public school system. When Chloe Merrick leaves the state her accomplishments are washed away by a changing political landscape, but she returns as Florida's First Lady and continues to fight for social change.

The keystone of the reformers' plan for change was a strong public education system. Ironically a hundred years later some of the issues raised in debates about education would sound familiar to Merrick, Reed and Beecher.

Beechers, Stowes, and Yankee Strangers is an interesting story about remarkable people during a period of change. The Fosters do a fine job in bringing the individuals and the time in which they lived to life.

– James Call

Wildlife Friend: FIU Society For Environmental Action

By Alisha Deen

Photographs by Bandru Deen

SEA created a lake volunteer system for students seeking extra-credit. Hennington Pond and two other ponds remain untouched by herbicides.

I met a great egret, waiting patiently on a sidewalk, during my sophomore year of college. Her blaring white feathers stood out against the dull color of concrete. This tall, elegant bird with a bowling-pin body and "S"-shaped neck, stood completely still amidst a busy campus.

I wondered what she was doing at Florida International University (FIU). Why did an Everglades native come to a place of mostly concrete, manicured grass and palm trees? One rarely saw wading birds fishing in campus ponds. Herbicide spraying to control unwanted plants had degraded the ponds' ecosystems. Turtles and fish gathered by the sidewalk coaxing handouts from students and suggesting that there was barely enough food in the pond to support them.

This was a source of a long-running conflict between the Facilities Management Department (FM) and the Environmental Studies and Biology faculties. As president of the FIU Society for Environmental Action (SEA), I wanted to get involved in the discussion.

SEA began talking with students and professors about the ponds. We collected hundreds of signatures on a petition to stop the spraying and recruited dozens of new members. At a meeting our advisor, zoologist Dr. Philip Stoddard, spoke about the history of herbicides on campus and what actions would lead to change.

The spraying was killing the plants and leaving the ponds unable to support native fish and birds. FM used copper sulfate to control algae and Rodeo for torpedo grass and cattails. Copper sulfate is toxic to fish and invertebrates; the base of the food chain. Where campus bird counters would once spot 27 species, now just three could be found. SEA framed the issue with the following question: Why would administrators use herbicides rather than cheaper, environmentally sound alternatives to manage the ponds?

Interviews revealed that FM wanted the university to have a golf-course style landscape with tropical palm trees and a carpet of freshly mowed, green grass that went right down to the "clean" edge of a pond. Algal mats and tall lake grasses did not fit this vision of a picture perfect campus.

But this picture was out-of-sync with reality. Every time there were algal blooms and the cattails grew high and plentiful it was because the pond's nutrient level was too high. When the sprayed plants died they fell into the water, providing nutrients that encouraged growth of unwanted vegetation. This created high nutrient levels, turbid waters, metal deposits in the soil and low fish counts.

Volunteers developed a formal survey and asked students if they found tall grasses offensive and sponsored presentations on the effects of herbicides in water bodies. Finally, SEA proposed an alternative, suggesting that the university use faculty and students to manage the ponds.

It seemed logical. FIU has experts in biology, landscaping and water chemistry working on campus. Why not tap into this resource to benefit the campus and environment?

At the same time Dr. Stoddard negotiated a moratorium on lake spraying. During a six-month period members of FM and the faculty would take lake-monitoring walks once a month to reassess the situation. Nine SEA members participated in one of these walks and administrators agreed to let us restore three of the ponds for a trial period of six months.

SEA members signed liability forms, put on gloves and went right to work removing torpedo grass and algae from Hennington Pond. Native plants were collected and transplanted to the campus. In just two months, the pond was thriving with colorful flowering plants and blooming with pond lilies. A year later, fish counts showed that the restored pond typically had 100 times more schools of fish than sprayed ponds and a bird count spotted 15 species, while just two were seen at ponds where chemicals are used to control vegetation.

Meanwhile, the university appointed Dr. Stoddard to chair a Lakes Management Committee composed of faculty members that included a landscape architect, an aquatic ecologist, a water chemist and a university vice-president. The group was charged with researching alternatives to the present system. FM would continue to contract with a chemical company until the committee issued a report later this summer.

And SEA created a lake volunteer system for students seeking extra credit. Hennington Pond and two other ponds remain untouched by herbicides. But the struggle continues at FIU. FM has the right to reject recommendations suggested by the Lakes Management Committee. And despite our efforts, FM has renewed its contract with the chemical company to treat the majority of the campus ponds and lakes with herbicides.

Alisha Deen is a student at Florida International University.

Editor's note: The May-June Wildlife Friend column contained a misstatement. The sentence should have read: "Tripp spent 13 years working as a teacher and is convinced that some children live a dreadfully boring existence." We regret any misconceptions that the error may have created.

Alisha Deen, President of SEA, Shawna Baker, a dedicated member and Dr. Phil Stoddard, SEA's faculty advisor. (Page 30) FIU students manually removing algae and other unwanted vegetation at Hennington Pond, FIU.

Manatees Sojourn in Florida Waters

By Bonnie J. Abellera

The Florida manatee, a subspecies of the West Indian manatee, has lived in Florida's waterways for millions of years. It is only within the last 30 years or so that research has shed some light on this mysterious mammal and its many unusual physical characteristics.

Manatees are air-breathing mammals that live in both fresh and salt water coastal areas around Florida.

A manatee's teeth are similar to the molars of some other mammals and are located in the back half of the lower and upper jaws. Manatee teeth are unique in that they are replaced horizontally (they move from the back of the jaw to the front before falling out), as opposed to coming in vertically as in most other mammals. Tooth replacement is continuous throughout their lives. This adaptation evolved because the vegetation they eat holds sand, which wears down their teeth over time. The continual replacement of the old worn teeth allows them to eat food with the newer molars that are able to grind vegetation.

Manatee lungs are unique. Unlike other mammals, the manatee's lungs are flat and elongated and extend along the back from the shoulder blades to half way towards the tail. The ribs, attached to the backbone, arch up to allow the lungs to be positioned along the backbone. The elongated lung distributes a buoyancy to more of the body than would be possible in a more typically shaped lung. This adaptation helps the manatee float horizontally. Unfortunately, it also makes them vulnerable to boat propellers that often puncture their lungs.

Bonnie J. Abellera is with the Bureau of Protective Management in the Office of Environmental Services, Fish and Wildlife Conservation Commission, Tallahassee.

Here are some Florida Manatee Safety Tips:

BOATERS

- Wear polarized glasses so that you can better see objects beneath the surface.
- Stay in the marked channels where the water is deeper.
- Pole, paddle or use a trolling motor when you are near sea grass beds.
- Never travel through grass beds as a short cut to where you are going. This is where manatees feed and rest.
- Slow down and enjoy your surroundings.
- Observe manatee protection speed zones and caution areas as they are placed in prime manatee travel corridors and habitat areas.

DIVERS

- Use snorkel gear when you observe manatees.
- Keep your distance. As with most wildlife, if you stay quiet and still you usually get better viewing opportunities. If you dive down to "pat" a manatee you are simply disturbing it.
- A mother and her calf belong together. Please do not separate them.
- Respect nature. By giving food and water to manatees you may make them dependent on humans and unable to survive in the wild.

Manatees are protected by the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973 and the Florida Manatee Sanctuary Act of 1978. It is illegal to either harass, pursue, molest, hunt, shoot or kill manatees.

To report manatee deaths, injuries, harassment or orphaned manatees, call the Florida Marine Patrol at 1-800-DIAL-FMP. You can also use *FMP on your mobile phone or VHF Channel 16 of your marine radio.

If you would like to find out more information about manatees, please visit the following Web sites:

http://www.dep.state.fl.us/psm/
http://www.fmri.usf.edu

Patrick M. Rose, Save The Manatee Club

CONSERVATION UPDATE

Compiled by James Call

Tracking the Right Whale

A tagging and research team of biologists is documenting right whale calving in Georgia and Florida waters. You can learn more about this research project by visiting **http://www.rightwhale.noaa.gov/.**

EPA Awards

The EPA recently gave $5 million in seed money to 41 local projects involving wind energy, urban forestry, watershed restoration and more. For information on the program and winner profiles go to **http://www.epa.gov/ecocommunity/sdcg/98parag.pdf.**

Native Fish Conservancy

The Native Fish Conservancy has overhauled its web site by adding hundreds of new photos and articles. The specialized pages include a children's section detailing how to turn an old tank into a native fish display for your home, school, youth organization and library. The site's address is **http://nativefish.interspeed.net**

Deformed Frogs

Two recent studies indicate parasitic worms could be causing the rising number of deformed frogs. Separate teams of researchers reported in the May issue of *Science* that when worms known as trematodes burrow into a frog's developing limb, the infestation creates the kinds of deformities seen in the wild. The studies focused on Pacific tree frogs in California. The researchers say their findings do not rule out pollutants and increased ultraviolet light as the cause of deformities elsewhere.

Whooping Cranes Return

Steve Nesbitt, an FWC wildlife biologist, documented the first nesting whooping cranes in the United States this century. The parent birds picked a prime location for a nest, a spot where predators are not likely to disturb it and where flooding is unlikely. They have been observed being very attentive to the nest and sharing duties while caring for the eggs. The two are among 77 survivors of the 178 whoopers introduced into the wild in Florida since 1973.

Summer Scallops

July is a good month for scalloping along the Steinhatchee River. The grass flats extend north and south of the river and are covered with bay scallops. Because they are so plentiful, many survive until the end of the season and grow to a large size. Late summer scallopers usually reap a bountiful harvest of big, sweet scallops.

Bird Dates Set

The 1999-2000 hunting seasons for migratory birds have been scheduled. Early wood duck and teal season will run Sept. 25-29. The three phases of dove season will be Oct. 2-25, Nov. 13-28 and Dec. 11-Jan 9. Regular duck and coot season will be Nov. 20-Jan. 18.

A Sea Turtle Summer

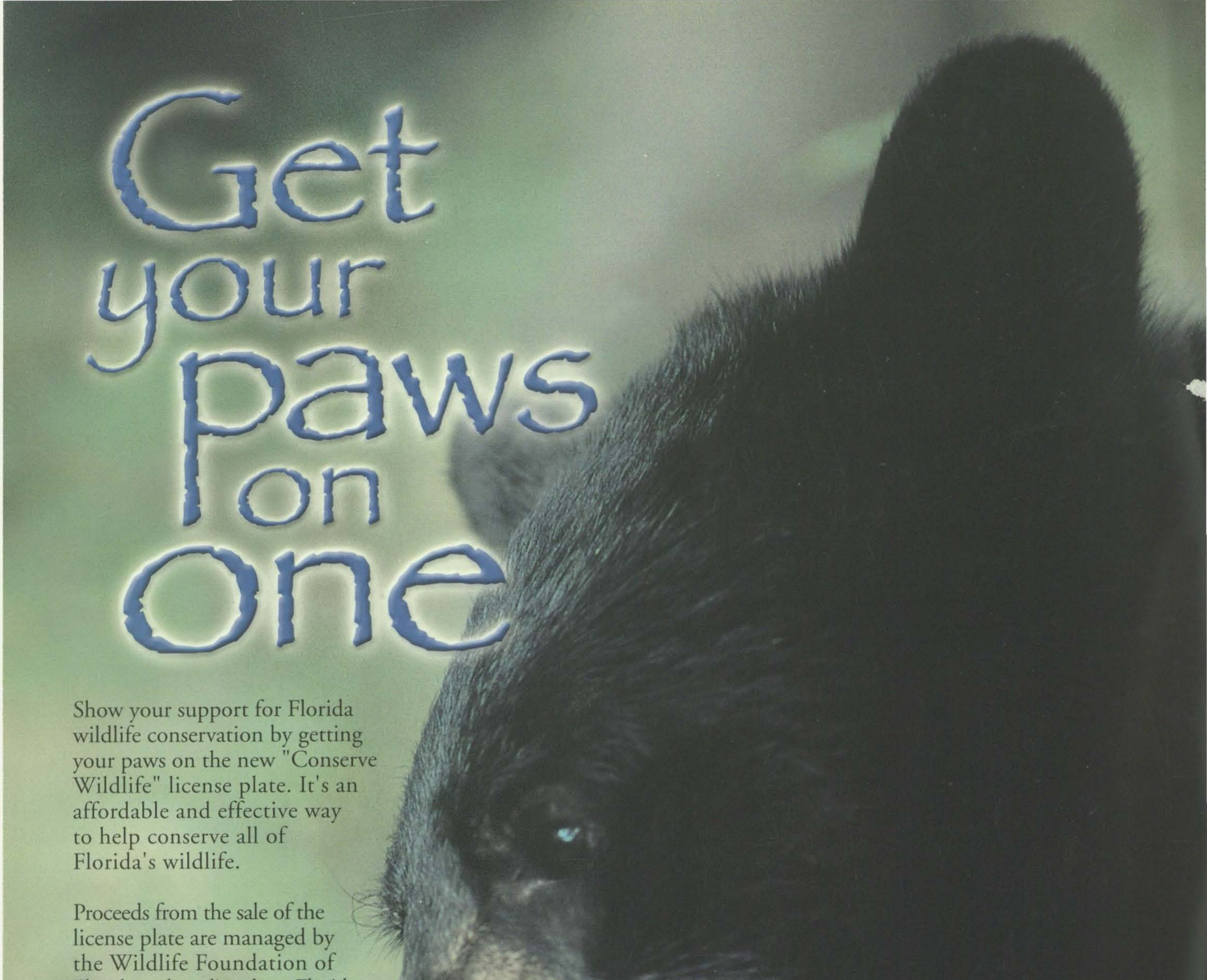
The Florida Cabinet has designated June, July and August as "Sea Turtle Protection Months." The action is intended to encourage all state agencies to provide protection to sea turtles during these months and remind people of the vulnerability of sea turtles nesting on beaches. About 90 percent of all sea turtle nests in North America are on Florida beaches.

Florida WILDLIFE®

Hognose snake by Barry Mansell

Coming Up in September/October

- **The Snake Issue – they slither, they crawl, they're everywhere in our next issue**
- **A hunter searches for mammoth prey without a gun, knife or arrow**
- **A first-timer goes turkey hunting**
- **Sanibel's "Ding" Darling Nature Preserve**



Get your paws on one

Show your support for Florida wildlife conservation by getting your paws on the new "Conserve Wildlife" license plate. It's an affordable and effective way to help conserve all of Florida's wildlife.

Proceeds from the sale of the license plate are managed by the Wildlife Foundation of Florida and go directly to Florida wildlife enhancement and conservation programs, with special emphasis on projects involving the Florida black bear. Ensuring the survival of the Florida black bear depends largely on the preservation of its habitat, which in turn benefits numerous other wildlife species.

Stop by your local tag agency office to purchase the new "Conserve Wildlife" license plate and proudly display your commitment to Florida's wildlife.

and help conserve all of Florida's wildlife.

www.state.fl.us/gfc/